Mamiya

SERVICE INSTRUCTIONS

for

Mamiya ZE

Mamiya ZE-2

QUARTZ

Mamiya
CAMERA CO., LTD.
TOKYO, JAPAN

MM9ZESI

S.I. 80-4-ZE

Repair Manual
for
Mamiya ZE Camera Body

The screw which has a mark of black circle dot on head of the its identification number is new type screw, so called "Tapping screw".

For example: ●TB2 x 4 ----------Tapping screw
●M1100-13771-------Tapping screw

Note: Special attention should be payed to tightening the screw in order to avoid marking oversized or broken hole.

Attention for cleaning up plastic parts of camera surface:

(1) Rub and wipe gently plastic parts with tissue paper or chamois without moistening it in any cleaning fluid.

(2) Some really stubborn dirt or grease?
You can use only "Benzine".
Moisten tissue or chamois in benzine, and rub and wipe surfaces for removing them, but never use any other fluids like alcohol, ether and keton.
Otherwise it may cause fading and crack to the plastic surface.

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P-1 Soldering

The ZE camera has very accurate shutter speeds by electronic control mode.

Well trained soldering is required and each switch timing is very important as well because of being many electronic circuits.

Therefore a soldering seminar is prerequisite for making good clean solder joint.

A. Electric soldering iron

You should choose a high level electric soldering iron for the fine electronic flexible printed board.

As the iron must not be leakage of electricity, please check it as follow.
Be careful, even if on a brand new iron. W'll be able to recognize the leakage.

How to check leakage of an iron.

1. Plug the line cord into the socket.
2. Set the tester range to ACV 1000 volt.
3. As shown in Fig. 1.

   Tester plus terminal (Red) —→ Slot of the socket

   Minus terminal (Black) —→ Tip of the iron

4. When changing voltage of the tester 1000 to minimum, there should not be continuity across terminals.
5. Put the plus terminal into another slot of the socket and check it as well.

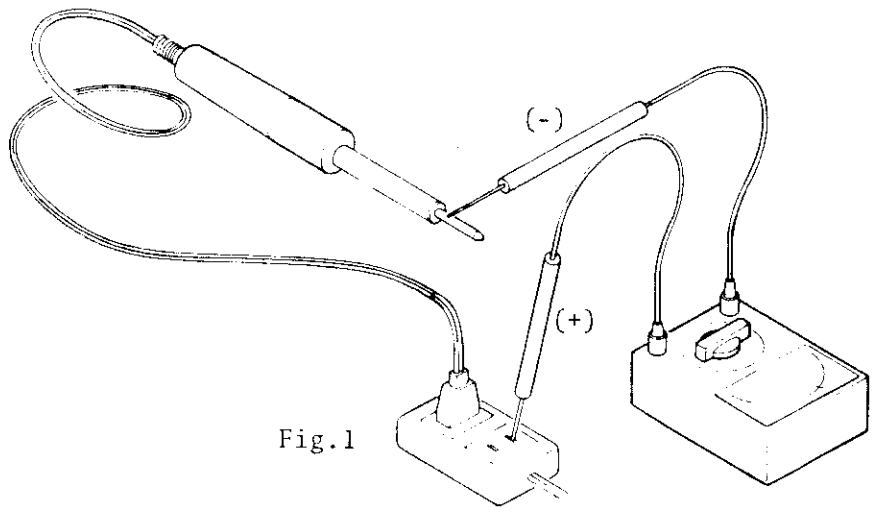

Fig.1

B. Solder and Flux

Also you should choose them which are superior for anti-corrosion.
Making good clean soldering joint is good timing.
Don't put the heated iron on the soldering land over five seconds otherwise circuit and electronic part will be damaged.

P-2 Tapping screw

ZE camera body consists of die casting parts which are central main body, mirror housing and front housing and glassfiber reinforced poly-caponete parts which are both sides film chambers and finder frame.

The "Tapping screw " which have been used in the poly-caponete parts are considerably different from the ordinary fine screw in its shape, pitch circle and hole.
Special attention must be payed to tighten the screw in order to avoid making oversized or broken hole.

A. Point of difference between Tapping screw and ordinary fine screw

	Sectional view of the screw	Tapping of hole	Pitch circle	Remarks
Ordinary fine screw	○ Perfect circle	Done	M1.7 - 0.35 M2 - 0.4	
Tapping screw	○ Perfect circle △ Inperfect circle (Tow types)	No	Very rough M1.7 - 0.5 M2 - 0.6	It is possible to replace each other in repair work.

B. Attention for Tapping screw

1. Don't overtighten it,
   because the strong torque is required for long size screw.
2. When tightening a small or a short size screw, pay great attention in order to avoid making oversized hole.
3. When retightening the screw, corresponed the thread of screw with the previous thread of hole by rotating it in reverse direction slightly.
   Never overtighten it.

4. If making the hole oversized, replace the screw with one step bigger sized one.

   For example

   - 3TB1.4x2 —→ 3TB1.7x2
   - TD1.7x4BL —→ TD2.0x4BL

5. Don't apply any "high lock" or "screw-lock tight" because of crack of the hole.
6. Don't smear the screw or its hole with oil or grease.

Repair Manual

for

Mamiya ZE-2

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P-1 This ZE-2 service instruction book is made in base on the ZE service instruction book.

Thus, the ZE-2 service instruction book should be used in conjunction with the ZE service instruction book.

P-2 Soldering and static electricity

Hybrid IC circuit and manual shutter speed circuit have been adopted on the ZE-2 camera newly.

Always pay your great attention for soldering and static electricity.

P-3 Tapping screw

Carefully read the ZE service instruction preface "P-2 tapping screw" again and deepen your understanding about the tapping screw.

1. Dis. and reassembly

Please always refer to diagrams of the ZE-2 parts catalog when dis. and reassembing.

However, only some particular ones have been described here in the text.

1-1 Disassembly of front housing with mirror housing and viewfinder:

A. Disassembly

Primarily unsolder following leadwires by referring to the electro circuit diaghrams.

1. From flexible PCB.

a.	White, yellow and orange leadwires from shutter	3 pcs
b.	Purple leadwire from main SW	1
c.	Green leadwire from reset SW	1
d.	Orange readwire from battery house	1
c.	Pink readwire between VR2 and VR3	1
f.	Green (Output) and purple leadwires from manual PCB.	2
g.	Green, brown and blue leadwires from selector PCB.	3
h.	Red leadwire from shutter	1
i.	Red leadwire from X synchro terminal	1

2. From selector PCB

a.	Pale blue leadwire from main SW	1
b.	Black leadwire from reset SW	1
c.	Pale blue leadwire from battery house	1
d.	Pink leadwire from manual PCB	1
e.	Yellow leadwire from manual PCB	1
f.	White leadwire from flexible PCB	1

3. From manual PCB

a.	Green, white, black, black and purple from flexible PCB	5
	Total	25 pcs.

4. The arabic numeral in a circle as shown in Fig. 1 indicate the procedure of disassembly.

Reassembly is normally the reverse of disassembly

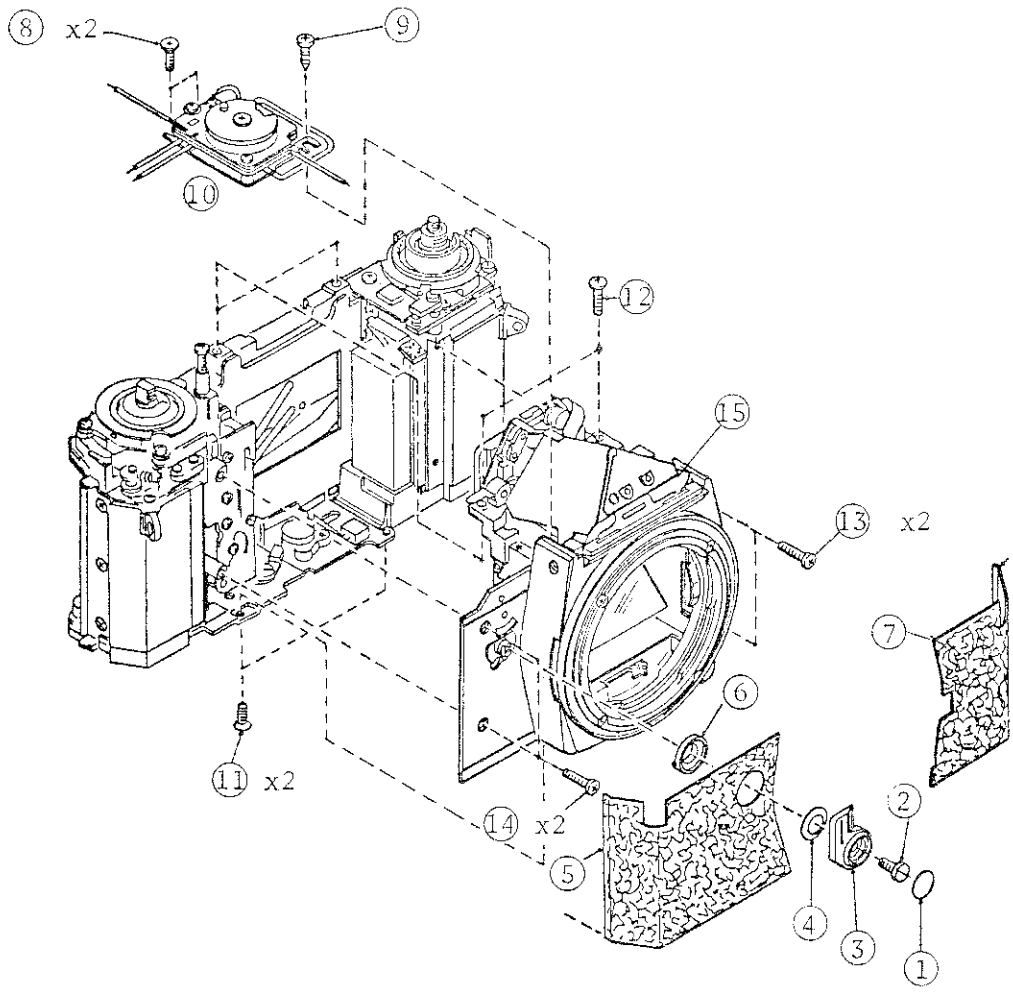


Fig.1

B. Significant notices when reassembling:

1. First charge the mirror of front housing assembly as follows.

   a. Move the release slide lever Ⓐ in direction shown by the arrow. (Fig. 2)

   b. Charge the mirror by mirror charge pin.

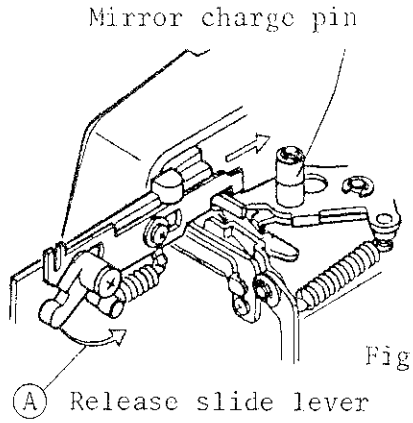


Fig.2

2. Lift up the release linking lever Ⓑ (Fig. 3)

3. While moving the mirror charge lever Ⓔ in direction shown by the arrow, cock the shutter by winding the film advance lever. (Fig. 4)

4.

   a. When installing the front housing assembly into the camera body, Be careful of position of the release linking lever Ⓑ, if the lever Ⓑ gets into under Ⓒ of the shutter release bar, Can not depress the shutter release bar. (Fig. 3)

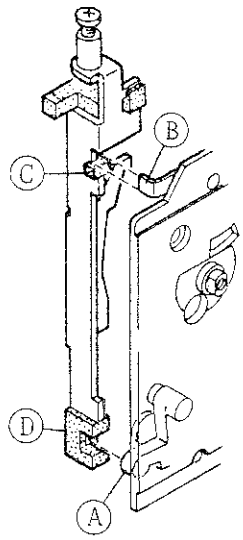


Fig.3

   b. Be careful for engaging the release slide lever Ⓐ with concave Ⓓ of end of the shutter release bar. (Fig. 3)

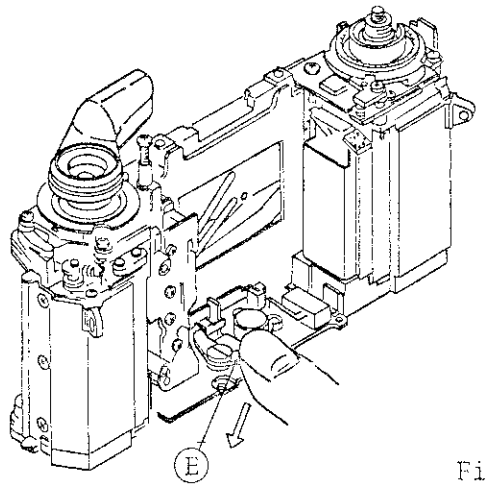


Fig.4

5. Installing selector PCB

a. First set the selector to bulb. (Fig. 5.6)

b. When installing the selector into the camera body, be extremely careful so as not to pinch any leadwires with its fork Ⓐ.

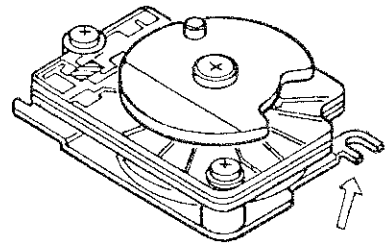


Fig.5

c. After installing the selector PCB check it as follows.

1) Set the selector to Auto position and release the shutter once. (Fig. 7)

2) Shift the selector to bulb position again and release the shutter. Shutter must operate in bulb function.

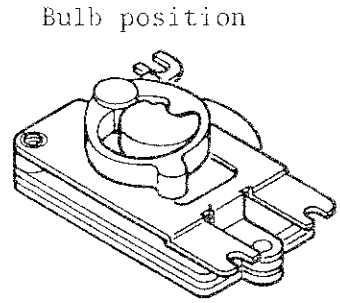


Fig.6

6. When attaching top cover

a. Set the selector to Auto (Fig. 7)

b. Set the shutter speed dial of the top cover to Auto and attach it to the camera body.

Note: It is required to check that the shutter dial correspond with the selector correctly.

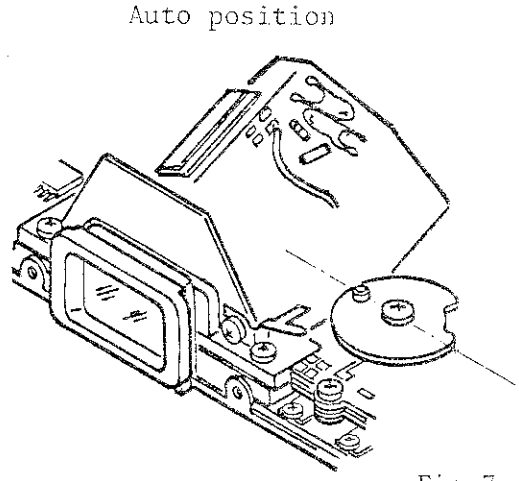


Fig.7

1. Dis. and reassembly

Please always refer to the exploded views of the ZE part catalog for dis. and reassembly except describing here.

The arabic numeral in a circle as shown in each Fig. indicates the procedure of disassembly.

Reassembly is normally the reverse of disassembly

1-1 Disassembly of front housing with mirror housing and viewfinder from camera body.

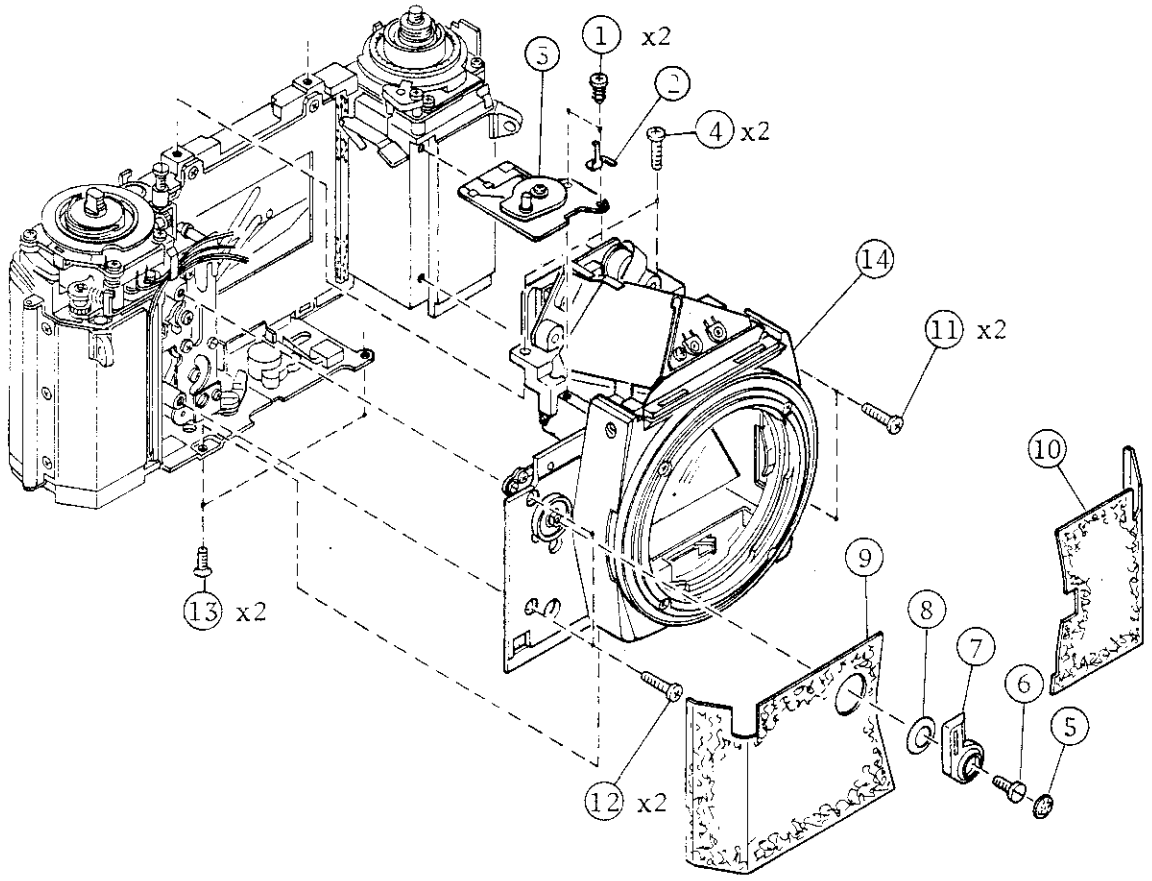


Fig.2

Note: 1. You should unsolder twelve leadwires from the flexible printed board and one from the SV printed board as shown in Fig. 3 next page before disassembling

1-2 Dis. and reassembly of M1100-14702 bottom base plate

1-3 How to hold shutter unit with your fingers

Please refer to the ZE service instruction book "1-2 and 1-3" page 13 to 15 for above two.

2. Film counter mechanism and film advance

2-1 Outline of the mechanism

A. Film advance

1. When closing the back cover, the film counter advance cam (B) strikes to the film counter gear with the lever (A) is pushed. (Fig. 8)

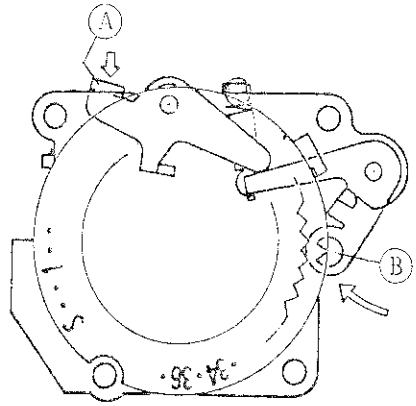


Fig.8

2. With the (1) film advance lever wound, the (3) sector gear is rotated by the protrusion (2).

   Then the (4) winding axle rotates.

   The (5) take-up spool rotates and the (TC) triple-cam gear is rotated by the arm (C) of (3) sector gear.

3. The (6) sprocket gear is rotated through the (7) idle gear.

   The (8) film advance sprocket rotates. Conseqently the film is rolled up on the take-up spool.

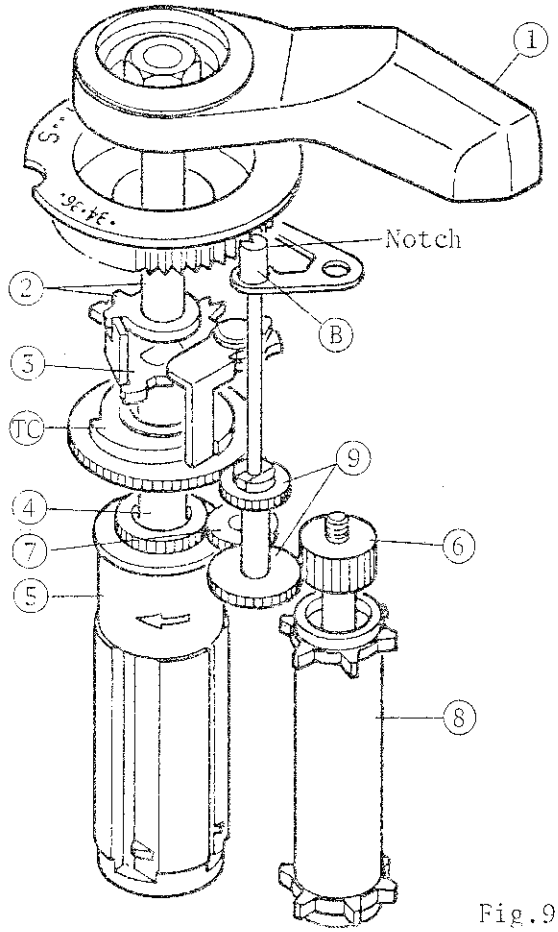


Fig.9

B. Advance of exposure counter

1. As the (B) exposure counter advance cam is rotated through the (9) advance cam gear engaged with the triple-cam gear, one tooth of the (D) film counter gear is advanced by the notch of the (B) advance cam.

2. When opening the back cover, the lever Ⓐ returns and the Ⓑ advance cam is detached from the Ⓓ film counter gear. Then the film counter is reset to starting position.

2-2 Determining M1100-13832 exposure counter advance cam

1. Detach the winding safety arm from the M1100-14501 crank cam. (Fig. 10)

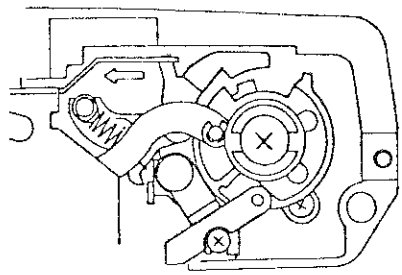


Fig.10

2. Press top of the sprocket gear with your left hand index finger. (Fig. 11)

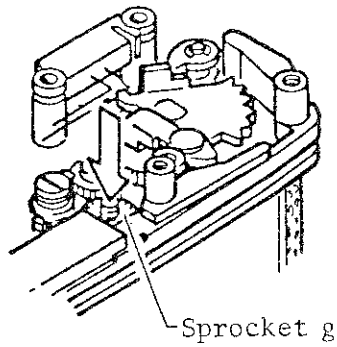


Fig.11

3. Rotate the winder film advance coupling clockwise until it stops with head of a pair of tweezers or a coin. (Fig. 12)

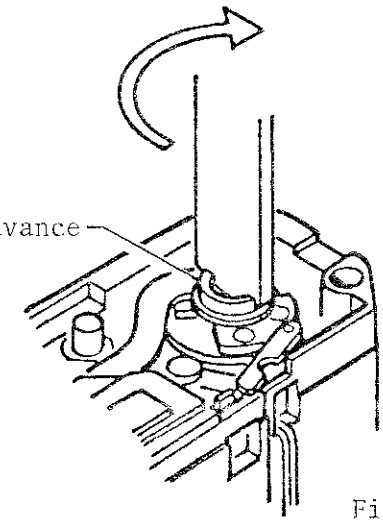


Fig.12

4. Insert the exposure advance cam into exposure advance gear as facing notch of the cam to the pawl Ⓐ. (Fig. 13)

5. Apply a fine grease on top face of the sprocket gear and put the spring on it.

6. Install the M1100-13802 exposure counter unit.

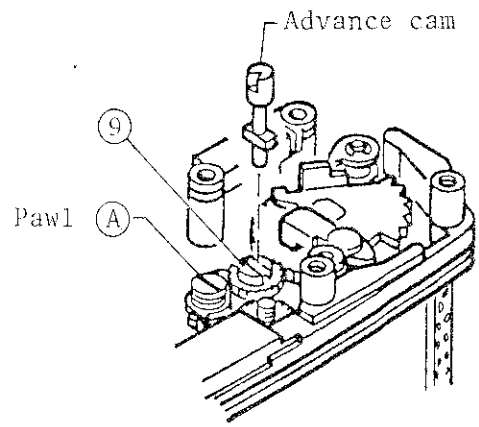


Fig.13

2-3 Adjustment of M1100-1316T1 winding pawl and M1100-1341 idle gear pawl

Please refer to the ZE camera service instruction book "2-1" page 17.

3. Mirror housing mechanism and shutter cocking

3-1 Operation of shutter and mirror

3-2 Film winding safety mechanism

3-3 Mirror rises up suddenly

Please refer to the ZE camera service instruction chapter "3" page 19 to 22 for above three.

3-4 Adjustment of M1100-26202 latch

A. Check

1. Charge the mirror.

2. Raise up the mirror by unlatching the M1100-2741T1 latch. (Fig. 14)

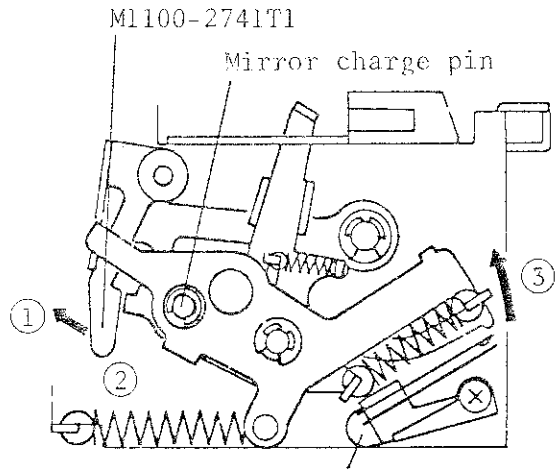


Fig.14

3. Put the focusing screen frame on the mirror housing and hold it with your left hand index finger. (Fig. 15)

4. Set the mirror back to viewing position once by depressing the Ⓐ - lever with your left hand thumb. (Fig. 15)

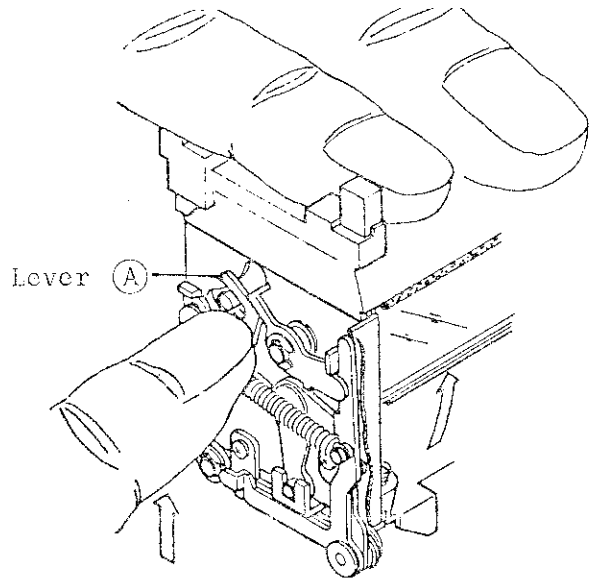


Fig.15

5. When raising up the mirror slowly, the M1100-26202 latch should unlatch a little before the mirror touches to the sealing strip. (Fig. 16)

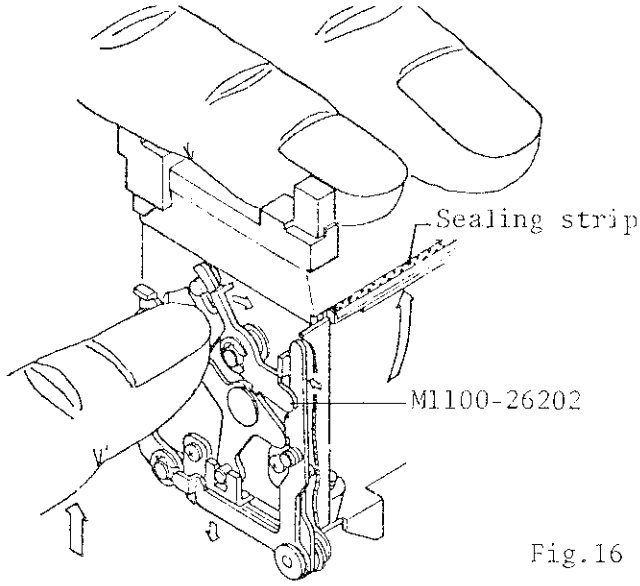


Fig.16

B. Adjustment

Adjustment is made by bending the latch end. (Fig. 17)

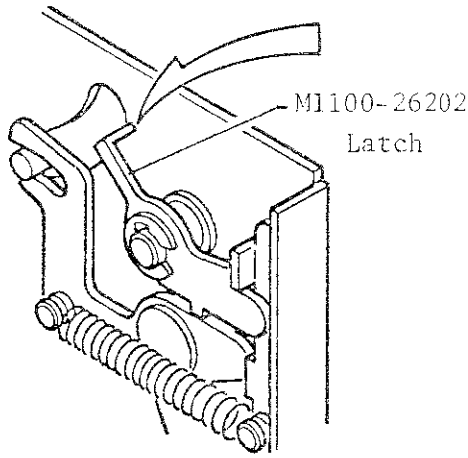


Fig.17

4. Position of aperture arm

4-1 Installation of M1100-21501 A printed board

4-2 Check and adjustment of the aperture arm

4-3 Replacement of M1100-21311 Aperture value ring

Please refer to the ZE camera service instruction book chapter "4" page 23 to 25 for above three.

5. Adjustment of Auto exposure and manual shutter speed

5-1 AE adjustment

1. Set the ASA film speed dial to 100.
2. Set the selector to AE position.
3. Put the EN-3 working top cover on the camera.
4. Attach a lens to the camera and set the aperture ring to F5.6.

   Note: Please arrange one 50 mm F1.7 lens for AE adjusting.
5. Check LV12, LV15 and LV9 with the EE tester.
6. Adjustment

   Adjustment is made by turning VR2 variable resistor with the EN-4 adjusting driver. (Fig. 18)

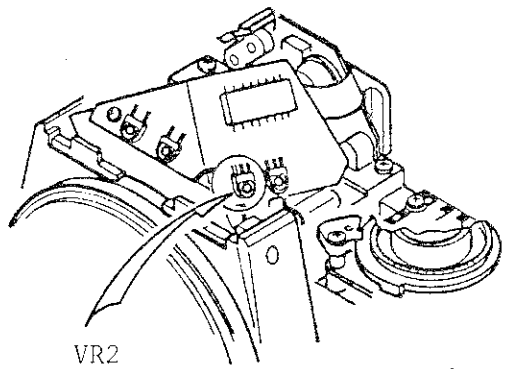


Fig.18

   a. First adjust it as the LED lights up on 1/125 or 1/250 at LV12.
   b. Next adjust it as the LED lights up or blinks at 1/1000 at LV15.
   c. Adjust it as the LED lights up on 1/30 or LT at LV9.

   Note: 1) You must turn the VR2 variable resistor gently and slowly.
   2) Replacing the VR2 is possible when damaging it.
   3) Never touch any other variable resistors.

		T. (LED)	f	ASA	Adjust
1	LV12	$\frac{1}{125}$ or $\frac{1}{250}$	5.6	100	VR2
2	LV15	$\frac{1}{1000}$ BlinKing is also good.			
3	LV9	LT or $\frac{1}{30}$			

5-2 Adjustment of manual shutter speed

After performing AE adjustment, adjust manual shutter speed as follows.

1. Put the camera without lens on a shutter speed tester and set the selector to 1 sec.
2. Read the exposure time by releasing the shutter.
3. Adjustment is made by turning the VR5 variable resistor.
4. Shift the selector to 1/500 sec. Then adjust it by the VR5.
5. Check 1/250 sec, 1/60 sec or 1/30 sec. and 1 sec again.

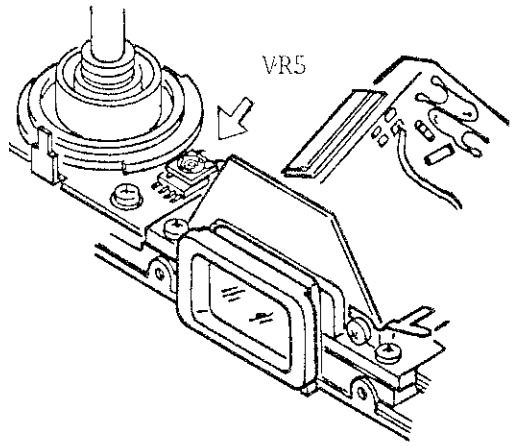


Fig.19

Note: If the exposure time is incorrect and can not adjust it, please refer to the text chapter "8".

5-3 Chech camera shake warning buzzer at range of lens focul length.

Threshold of warning buzzer for each lens

	LT. 30	60	125	250	
28mm 28mm - 50mm Zoom 35mm 50mm					
135mm 80mm - 200mm Zoom 70mm - 150mm Zoom					
200mm					
Over 301mm					

Fig. 20

1. Attach the top cover to the camera body and set the selector to Auto position.

2. Mount the lens of EN-18 camera shake warning tester to the camera.

3. Set the knob of the tester to "30". (Fig. 21)

4. When LED lights up at 1/30 and LT in turning the lens aperture ring, the warning buzzer must sound.

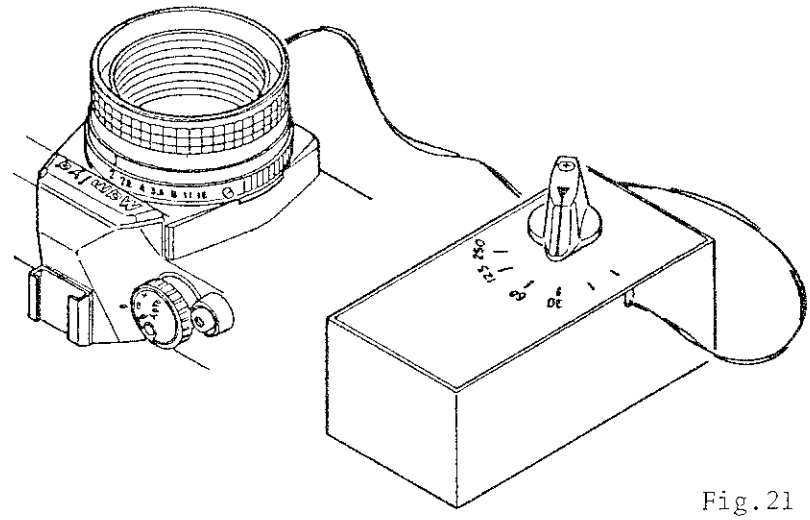


Fig.21

Fig. 21

EN-18 Camera shake warning tester

5. When shifting the knob to "60", the buzzer must sound at 1/60 sec. and slower shutter speed thand 1/60 sec. check also "125" and "250".

Note: 1) Notwithstanding a camera body is correct in checking with EN-18 warning tester, the buzzer sounds incorrectly when mounting a certain lens.

In above case, replace the lens signal board with new one. (Fig. 22)

2) For some other trouble please refer to the text chapter "8".

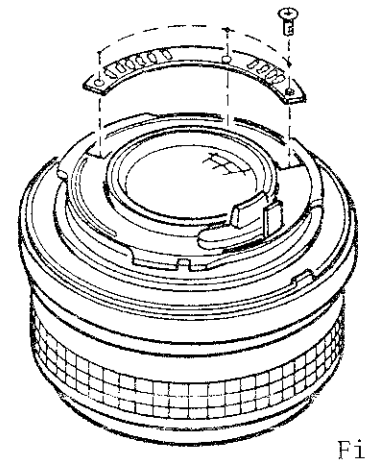


Fig.22

Thirteen leadwires to be unsoldered

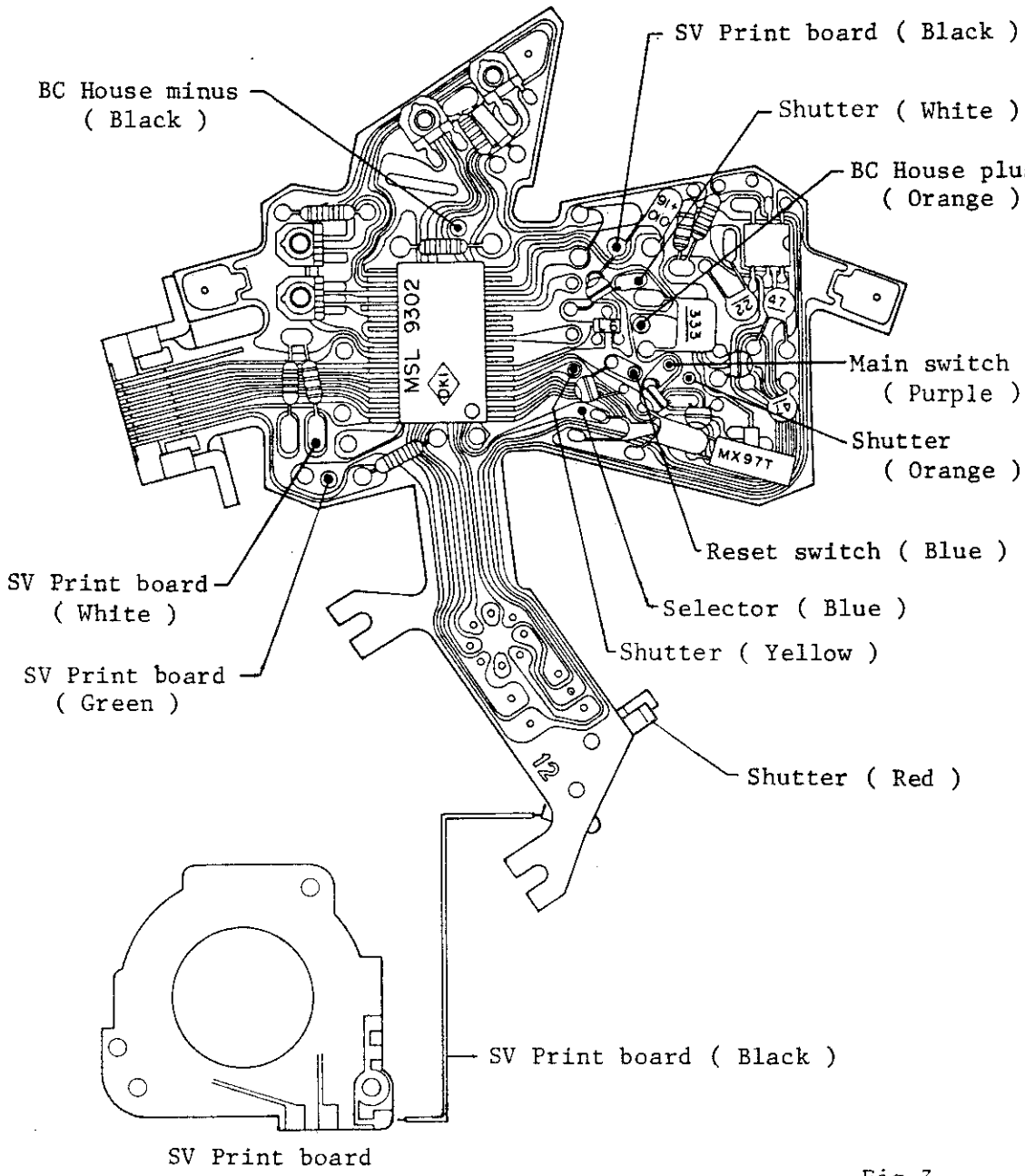

SV Print board (Black)
BC House minus (Black)
Shutter (White)
BC House plus (Orange)
MSL 9302
Main switch (Purple)
Shutter (Orange)
MX97T
Reset switch (Blue)
SV Print board (White)
Selector (Blue)
Shutter (Yellow)
SV Print board (Green)
Shutter (Red)
SV Print board (Black)
SV Print board

Fig.3

6. Adjustment of viewfinder infinity

6-1 Replacement of mirror and mirror angle 45 degree

6-2 Adjustment of viewfinder infinity

6-3 How to clean up inside of the finder

Please refer to the ZE camera service instruction book chapter "5" page 27 to 30 for above three.

6-4 Body flange back

$$45.5 \begin{matrix} + \ 0.02 \\ - \ 0.05 \end{matrix}$$

When changing M1100-21211 bayonet ring or M1100-21112 front hausing, you should check and adjust the body flange back as follows.

A. Check

1. Set the dial gauge to Zero by using the T-2 block gauge 45.5 mm. (Fig. 23)

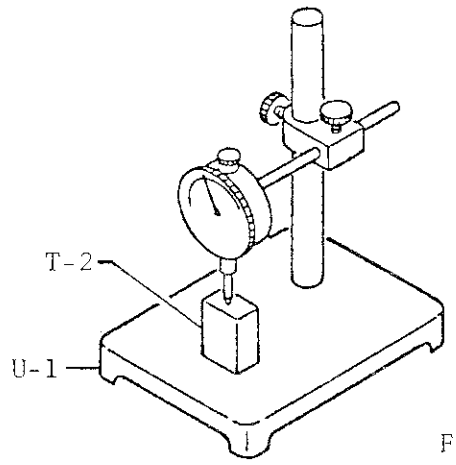


Fig.23

2. Retighten four fixing screws of bayonet ring and eight screws of the front housing assembly. (Fig. 24)

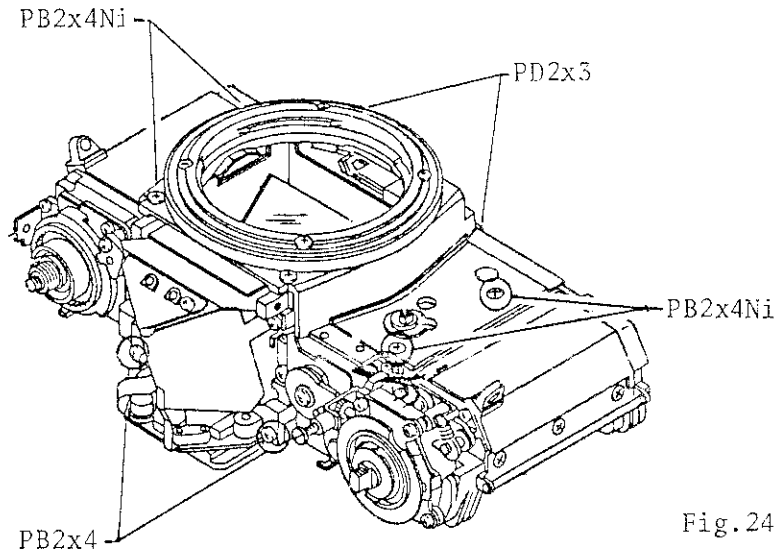


Fig.24

3. Put the camera body on a surface plate by facing the bayonet rings downward. (Fig. 25)

4. Measure four pointed places A, B, C and D. (Fig. 25)

   Each place should be in tolerance 45.5 mm $^{+0.02}_{-0.05}$

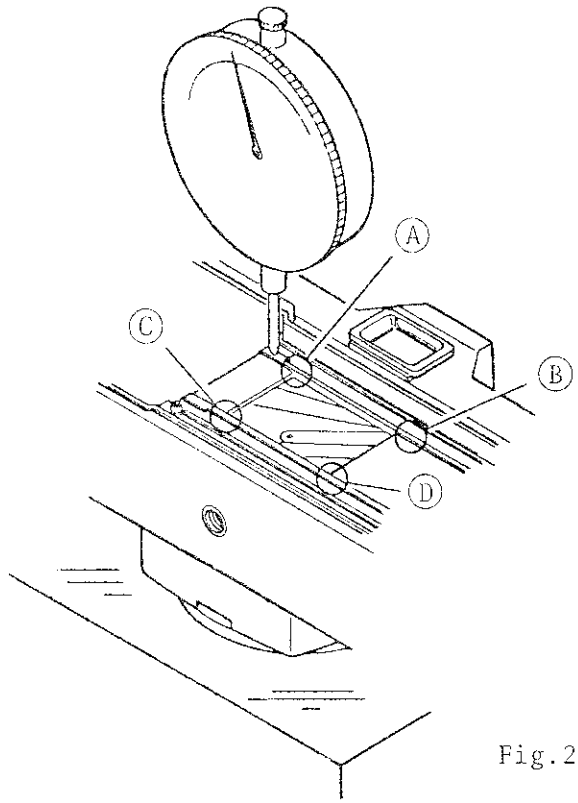


Fig.25

B. Adjustment

1. Referring to the text "1-1", remove the front housing with mirror housing and focusing screen frame from the camera body.

2. Adjustment is made by putting following washers 4W2x0.03, 0.05 or 0.1 required place which are shown in Fig. 26.

   Note: 1) Apply "patex" or any other adhesive on the place before putting the washer.

   2) The eight screws must be tighten sufficiently.

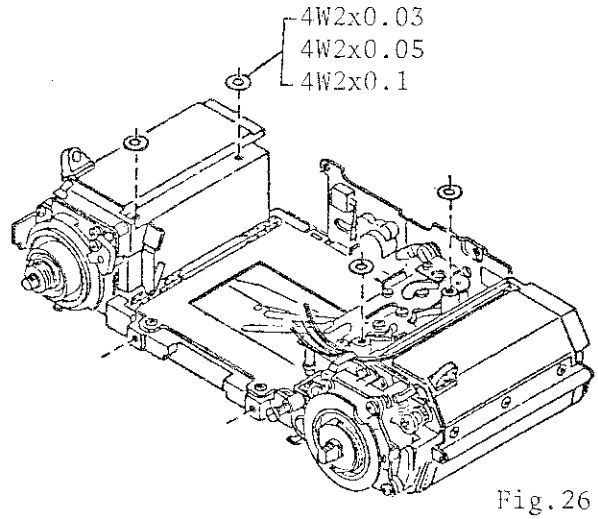


Fig.26

7. Shutter release

7-1 Release stroke

A. Check

When depressing the shutter release button slowly, shutter should be released in 1.8 mm to 2.1 mm.

B. Adjustment

1. Remove the M1100-14702 bottom base plate.

2. Insert the No. 4 screw driver as shown in Fig. 27 and then bend the mirror latch arm Ⓐ.

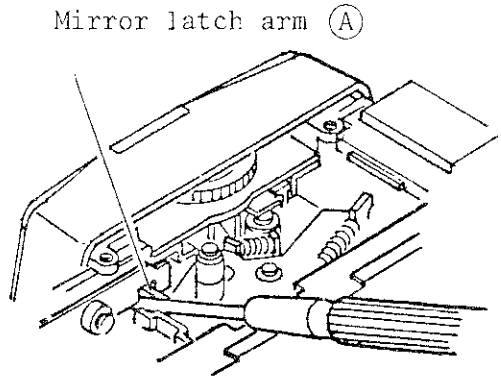


Fig.27

7-2 Shutter release by selftimer

When releasing the shutter by selftimer, Selftimer should operate slightly more after releasing the shutter.

If not or can not release it, do following check and adjustment after removing the winding bottom base plate.

A. Check

1. Cocking the shutter and mirror, release the shutter several times.

   Check that operation of the mirror latch is smooth. (Fig. 28)

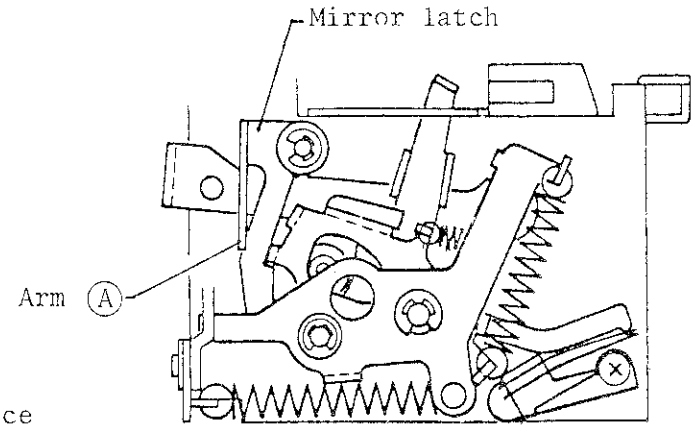


Fig.28

2. Cock the shutter and mirror again and then check clearance between the mirror latch arm Ⓐ and slide bar Ⓑ. (Fig. 29)

   Limit: 1 mm ± 0.15

Note: Use 1 mm diameter rod or t=1 mm a strip of plate for measuring it.

B. Adjustment

1. If the mirror latch does not come off smoothly, polish up latch face with a fine oil-stone and a little dab of grease would help a lot.

2. When clearance is out of tolerance, adjust it by bending the mirror latch arm Ⓐ .
(Fig. 29, 27)

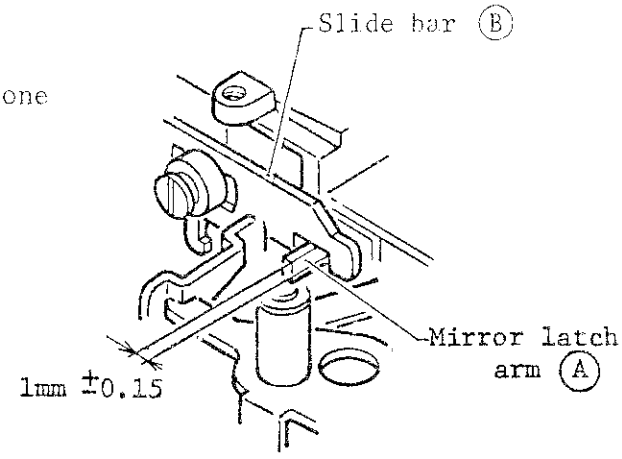


Fig.29

8. Electronic circuit, switching and trouble shooting

8-1 Outline of electronic circuit at AE

8-2 Check and adjustment of each switch (Main SW memory SW, reset SW and 103 winder SW).

Please refer to the ZE service instruction book chapter "6" page 31 to 38 for above two.

8-3 Outline of manual circuit

1. Discharge of C12 capacitor

When depressing the shutter release button slowly, the first blind of the shutter begins to run when the mirror approaches the top of its movement.

The memory switch is turned off right before the mirror starts to operate and then the current flows into the TR8 circuit through the IC1 - 9 pin.

The C12 is discharge with operation of the TR8.

At this time also the current flows into TR7 circuit.

2. Charge of C12 (Begin to count the exposure time)

When the first blind of the shutter begins to run, the trigger switch of the shutter exposure time control circuit is turned off.
By this switching the current to the TR8 circuit is cut off.

Thus the C12 begins to charge for counting the exposure time by the TR8 switches off.

3. When reaching to the predetermined voltage (Second blind runs)

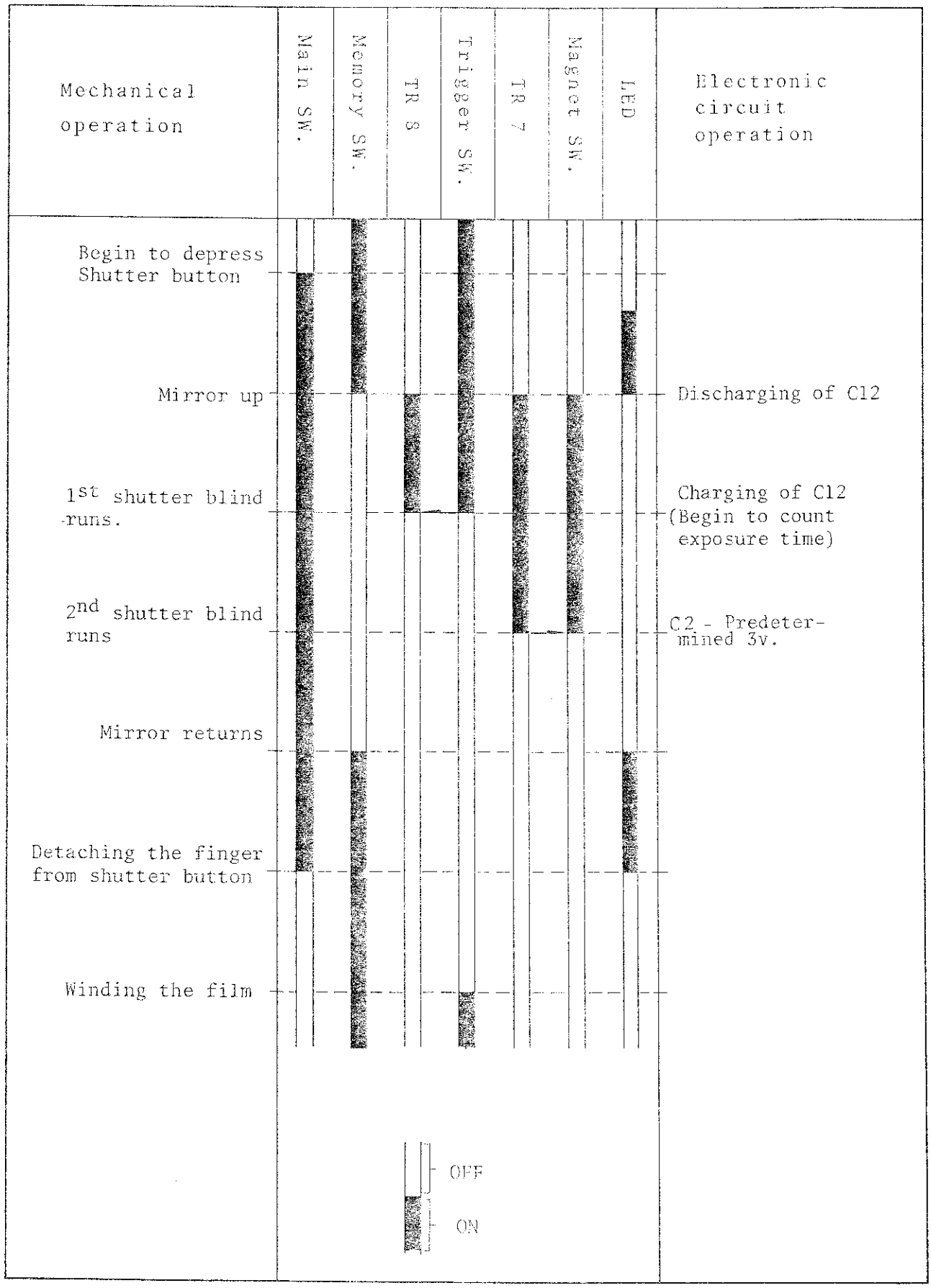
When the C12 reaches to the predetermined 3 volt, the current to the TR7 circuit is cut off by operation of the IC5 comparator.

By the TR7 turns off, the magnet which has held the second shutter blind is now turned off to release the second shutter blind.

Thus the proper exposure time is obtained. As soon as the mirror returns and the memory switch turns on and the LED lights up again.

With the finger detached from the shutter button, the main switch turns off and the LED puts out..
The trigger switch turns on with the film advance lever wound for next exposure.

Switching at M mode



8-4 Check by a Tester and trouble shooting

A. Important

1. When checking the electronic circuits and parts by using a tester, we recommend you to check them with the tester range DCV but not range OHMS.
2. When checking some of them with the OHMS range, you should choose the range X100 or X1000, but not X10,000 and do not forget to remove the battery cartridge from the camera body.
3. Do not apply even if three volt or less and more directly to the IC and LED circuits when checking.
4. Do not touch the VR1, VR2, VR3, VR4 and VR5 variable resistors with your bare fingers.
5. Pay your attention when handing with the flexible printed circuit board because some parts on it are liable to hurt.
6. Always special attention should be payed to making fine soldering joint.

B. Check by tester

1. Incorrect shutter speed at M mode

Selector: M

Main SW : ON

	Connection of tester terminal		Tester indicates	Checking point
	Red (+)	Black (-)		
(1)	Pink leadwire land on MPCB	Body earth	Approx 5.9V	1) Broken or malsoldering of pink leadwires. 2) Loosened earth screw of MPCB 3) Contact efficiency of reverse side selector brush 4) Broken or malsoldering of leadwire from selector
(2)	IC5-NO. 5 pin	"	Approx 2.9V	1) Malsoldering of VR5 2) Malsoldering of R44, R45, R46 3) IC5-Malsoldering
(3)	IC5-NO. 2 pin	"	Approx 0.3V	
(4)	IC5-NO. 6 pin But, at 1/1000. (When shifting the shutter peed to slower, the voltage will reduce)	"	Approx 5.9V	1) C12 — Malsolder 2) Yellow leadwire — Broken malsolder 3) TR8 — malsolder
(5)	IC5-NO. 3 pin But unsolder purple leadwire from memory SW.	"	Approx 0.2V (0.7V) By D.M	1) Purple leadwire — Broken, malsolder 2) Memory SW — Chattering
(6)	TR7 - Collector	"	Approx 5.9V	1) Green leadwire — Broken, malsolder 2) TR7.D5 — Malsolder
	Ditto, but in operating shutter	"	OV	
(7)	IC5-NO. 1 pin NO. 7 pin TR7 - Base But in operation shutter at 1 sec.	"		1) R47, 48 — Malsolder 2) TR7 — Malsolder

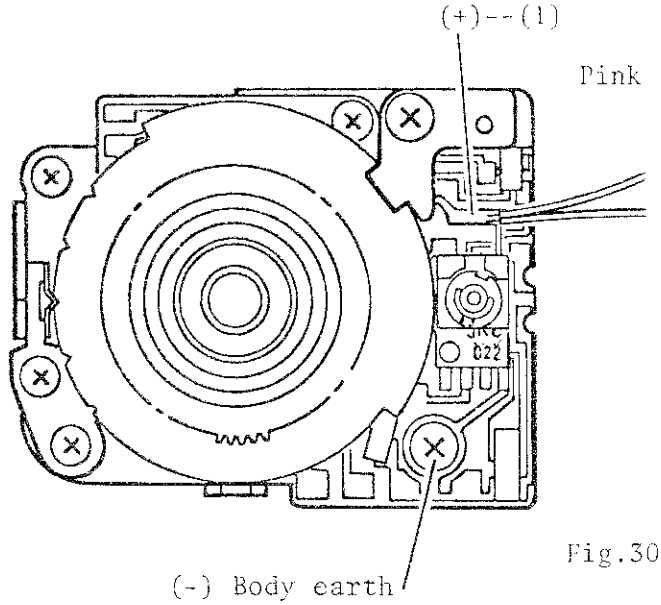


Fig.30

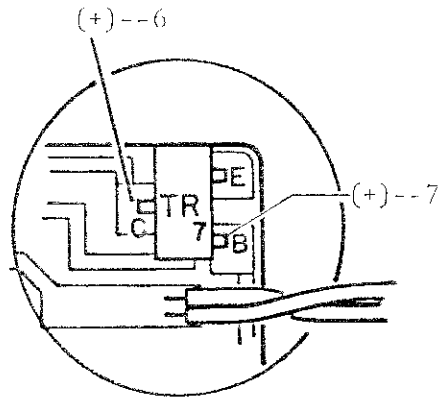


Fig.32

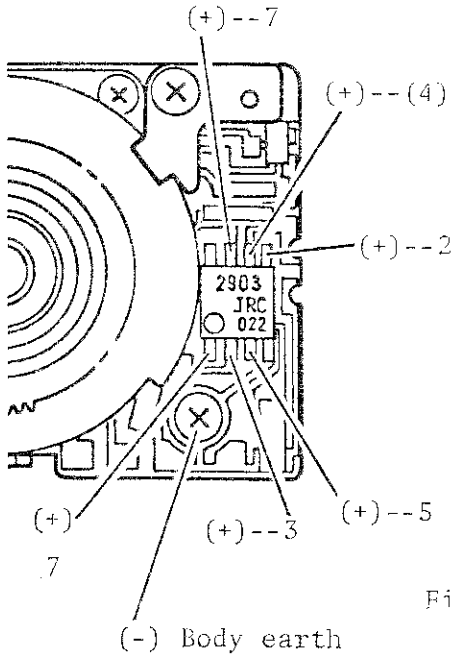


Fig.31

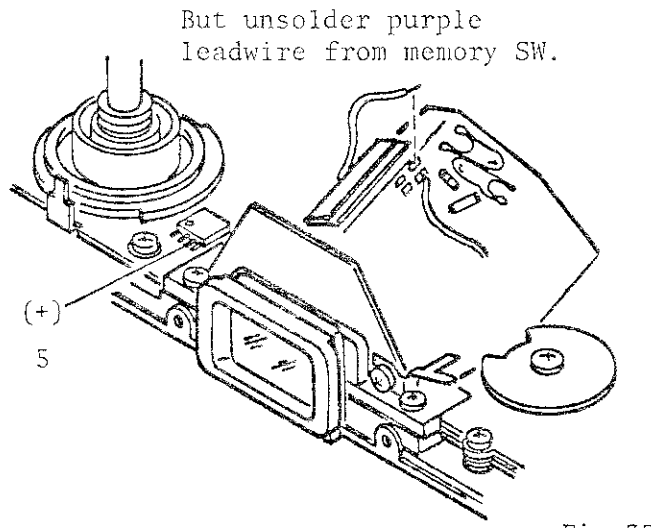


Fig.33

2. Does not sound the buzzer

Selector: Auto

	LED	Connection of tester terminal		Tester indication (Approx)	Checking point
		Red (+)	Black (-)		
(8)	LT	HIC - NO. 6 terminal	body earth	4.5 V	No.5,6 terminal — malsolder
	30	HIC - NO. 5 terminal			
(9)	LT	TR6 of HIC - Base	TR6 Emitter	0.7 V	1) D5 of HIC 2) TR6 — malsolder
	30				
(10)	LT	Contact of buzzer	Body earth	3 V	1) Red leadwire 2) TR6, 3) C11 4) IC4 — Malsolder
(11)		HIC-terminal Input pin 14 ——— ⑧ 4 ——— ⑦ 13 ——— ⑥		conti-nuity	1) 14, 4, 13 — malsolder 2) Pin housing — contact efficiency

2. Shutter and mirror housing must be charged before reassembling them.

3. When reassembling the front housing block to the body, first try to install from viewfinder part.

4. Lift up the M1100-1721T1 shutter release bar and pull down the M1100-17261 release lever so that you can install the front housing to the body completely.(Fig. 4)

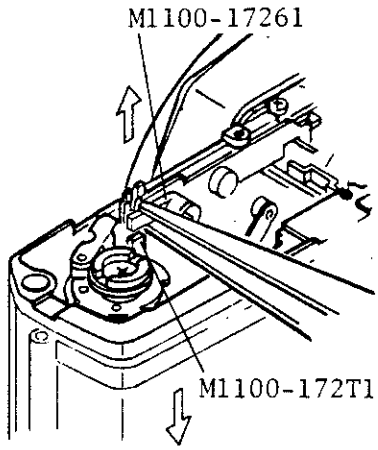


Fig.4

5. Hold the M1100-17601 selftimer release lever with tweezers and put it on shoulder of the shutter release bar (Fig. 5)

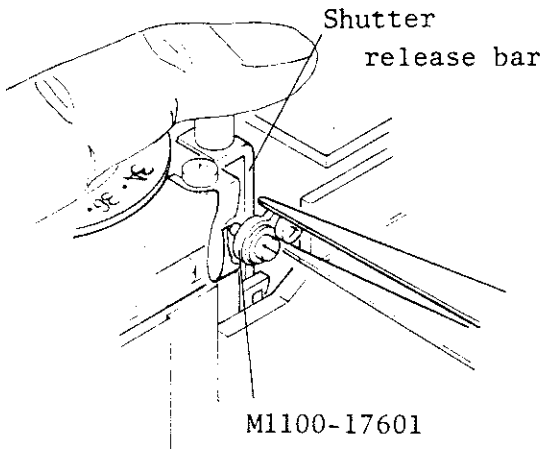


Fig.5

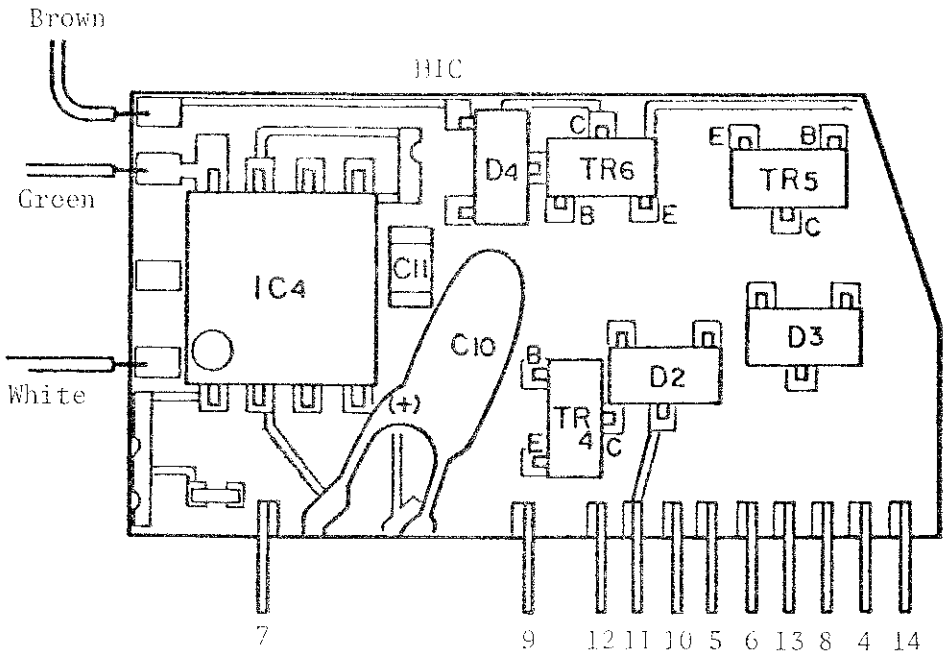


Fig.34

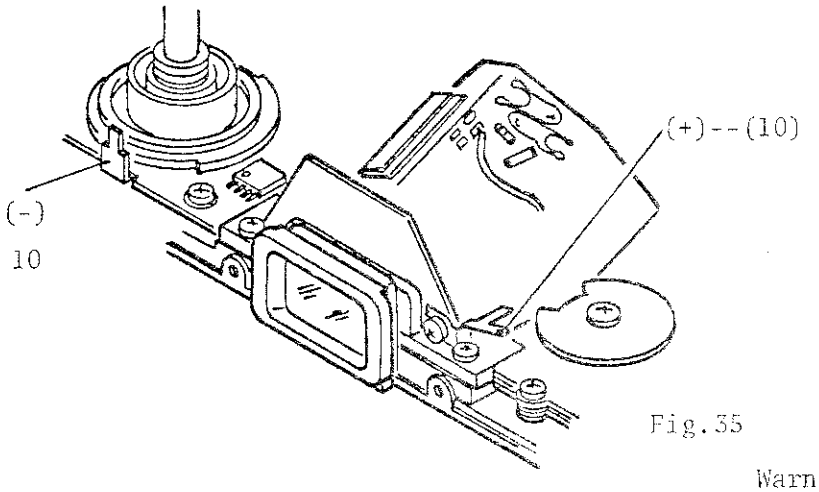


Fig.35

Warning signal input pins

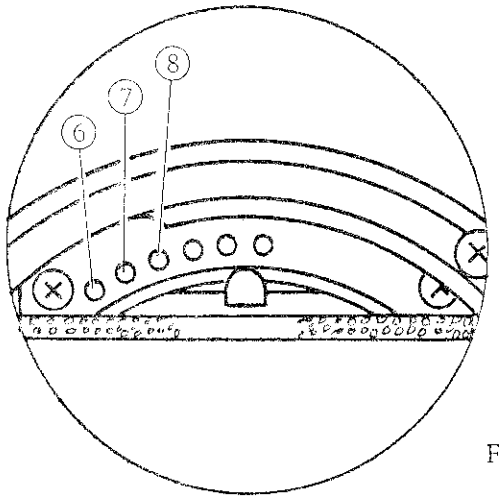


Fig.36

3. LED does not light up

Selector: Auto
Main Switch: ON

	Connection of tester terminal		Tester indication (Approx.)	Checking point
	Red (+)	black (-)		
(12)	Green leadwire land on HIC	HIC-NO.7 terminal	5.9 V	1) Reverse side selector brush — contact efficiency 2) Green leadwire — Broken, malsolder 3) HIC - NO.7 terminal — malsolder
(13)	HIC - NO.8 terminal	Body earth	3 V	1) LED - cathode 2) NO.8 terminal — malsolder
(14)	TR5 - Base	"	0.7 V	TR5 — Malsolder

Selector: M
Main Switch: ON

(15)	HIC - NO.9 terminal	Body earth	4.5 V	No. 9 terminal — malsolder

Note: Refer to Fig. 34 on previous page for connection of tester terminals.

4. Battery leak

Please refer to the ZE service instruction book "7-4" page 63 to 65.

C. Trouble shooting

1. Shutter speed too fast at M mode

⇩

(1)	Check text "8-4, B-1 (1) to (7)" in order	No →	
(2)	Memory SW —— Not switch off	→	Refer to the ZE service instruction book "6-2 B"
(3)	Trigger SW —— Not switch off	→	1) Yellow leadwire from trigger SW. — short 2) Refer to ZE service instruction book "7-2 B-7"
(4)	White leadwire from selector —— Malsolder	→	Resolder

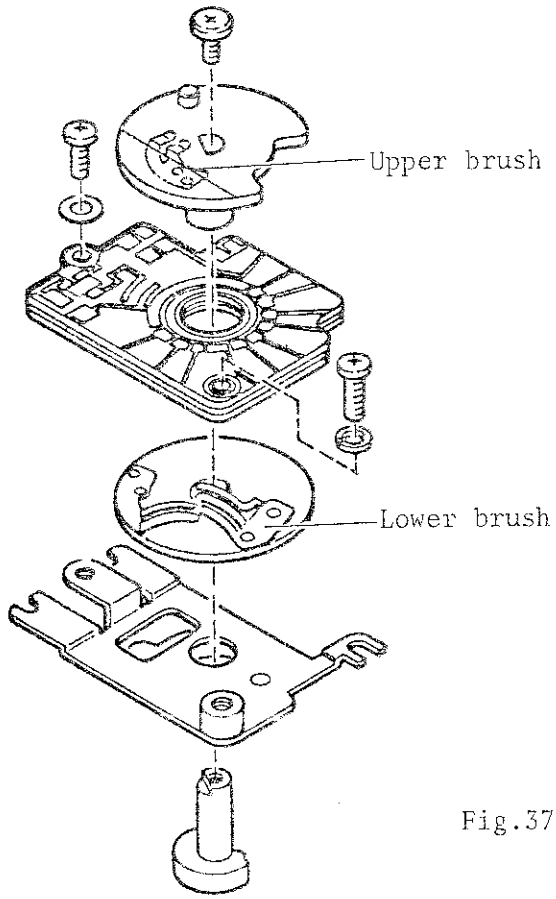


Fig.37

2. 2nd shutter blind does not run or shutter operates as bulb at M mode.

3. Shutter speeds are too slow and not adjustable at M.

- Yellow and white leadwires from shutter — Short
- IC5 - No.5 pin and yellow leadwire land — Short
- Green leadwire (output) and purple leadwire in MPCB — Short
- Black leadwire from MPCB — Malsolder
- Upper selector brush — Contact efficiency and dirty
- Yellow leadwire in selector P.C. board — Malsolder
- Contact efficiency of hot shoe earth contact — Not enough

4. Shutter speed becomes slower at LV9 with top cover

Note: Be carefull not to pinch any leadwires when tightening the selector.

5. When detaching finger from shutter release button, shutter speeds are incorrect.

Selector: M

	Main SW	Connection of tester terminal		Tester indication (Approx.)	Check point
		Red (+)	Black (-)		
(1)	OFF	Purple leadwire land on MPCB	Body earth	5.9 V	Purple leadwire —Malsolder
(2)	OFF	TR7 - Collector But unsolder the green leadwire	Body earth	5.8 V	D5 —Malsolder
	ON	" "	"	0 V	

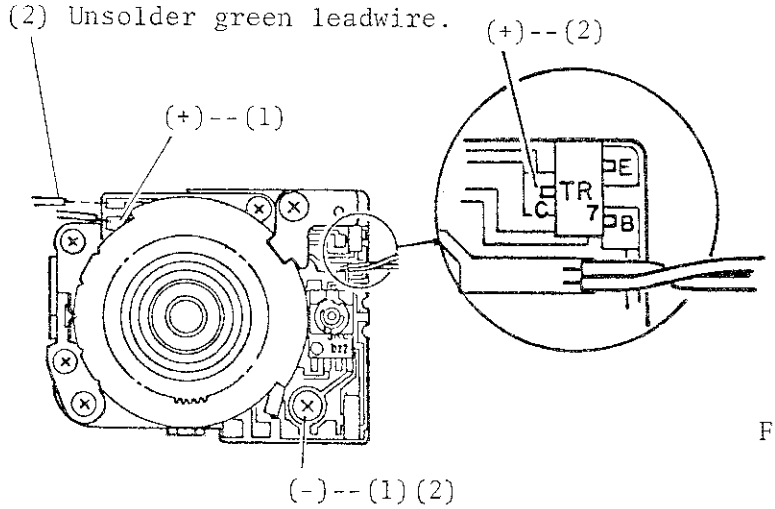


Fig.38

6. Buzzer does not sound at all

7. Buzzer does not sound a certain shutter speed.

(1)	Check text "8-4, B-2 (8) to (11) in order
(2)	Red leadwire of pulsating buzzer — Broken, malsolder
(3)	Warning signal input pins ⑥ ⑦ ⑧ — Be sunk
(4)	HIC-pattern — Broken, damage
(5)	Gray, purple, blue leadwires — Broken, malsolder

8. LED lights up on 1/1000 at M mode

(1)	Pink leadwires — Malsolder
(2)	Brown leadwire from selector — Malsolder
(3)	Reverse side brush of selector — Contact efficiency and dirty

9. LED does not light up at M and Auto.

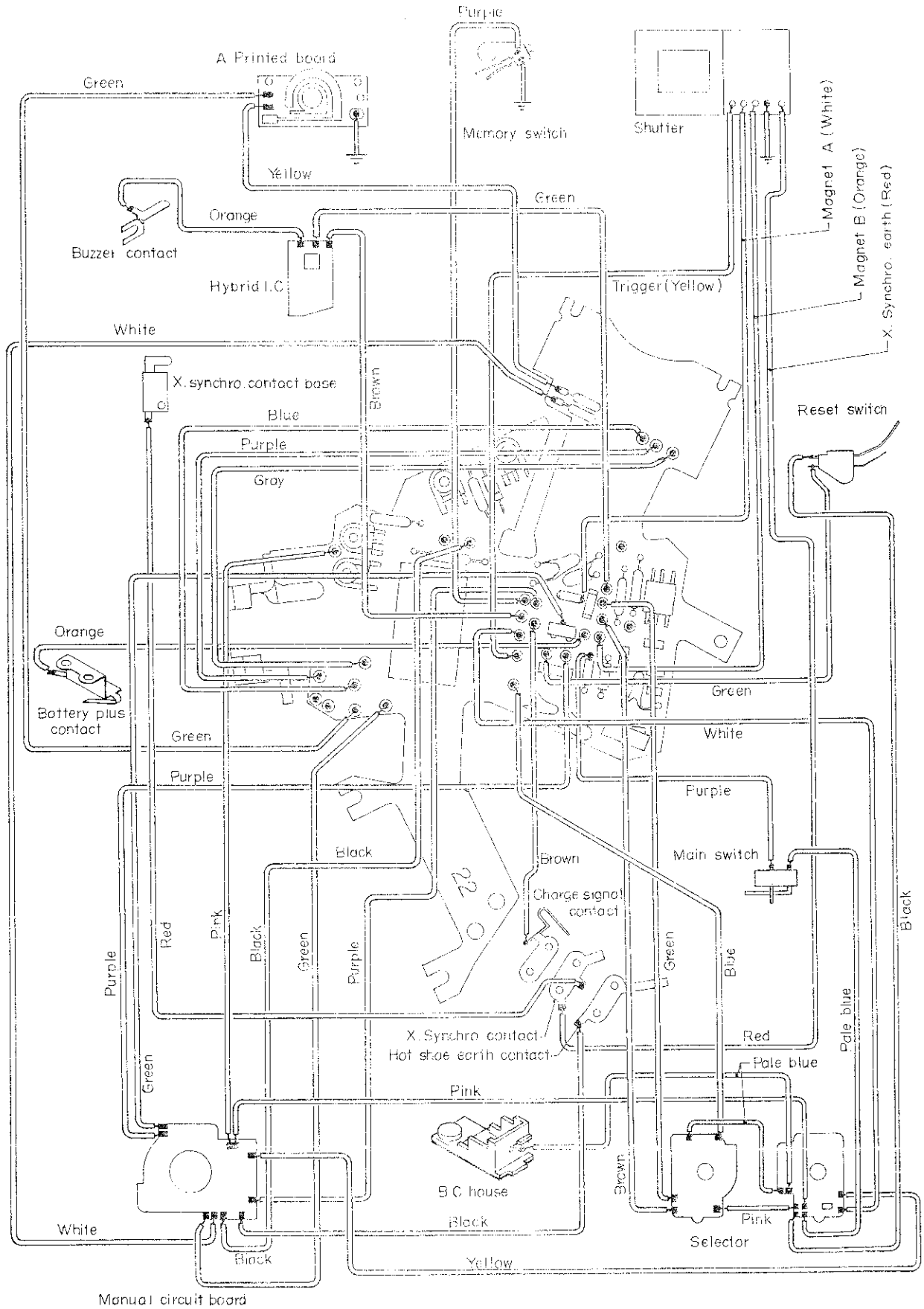
10. LED does not light up at M

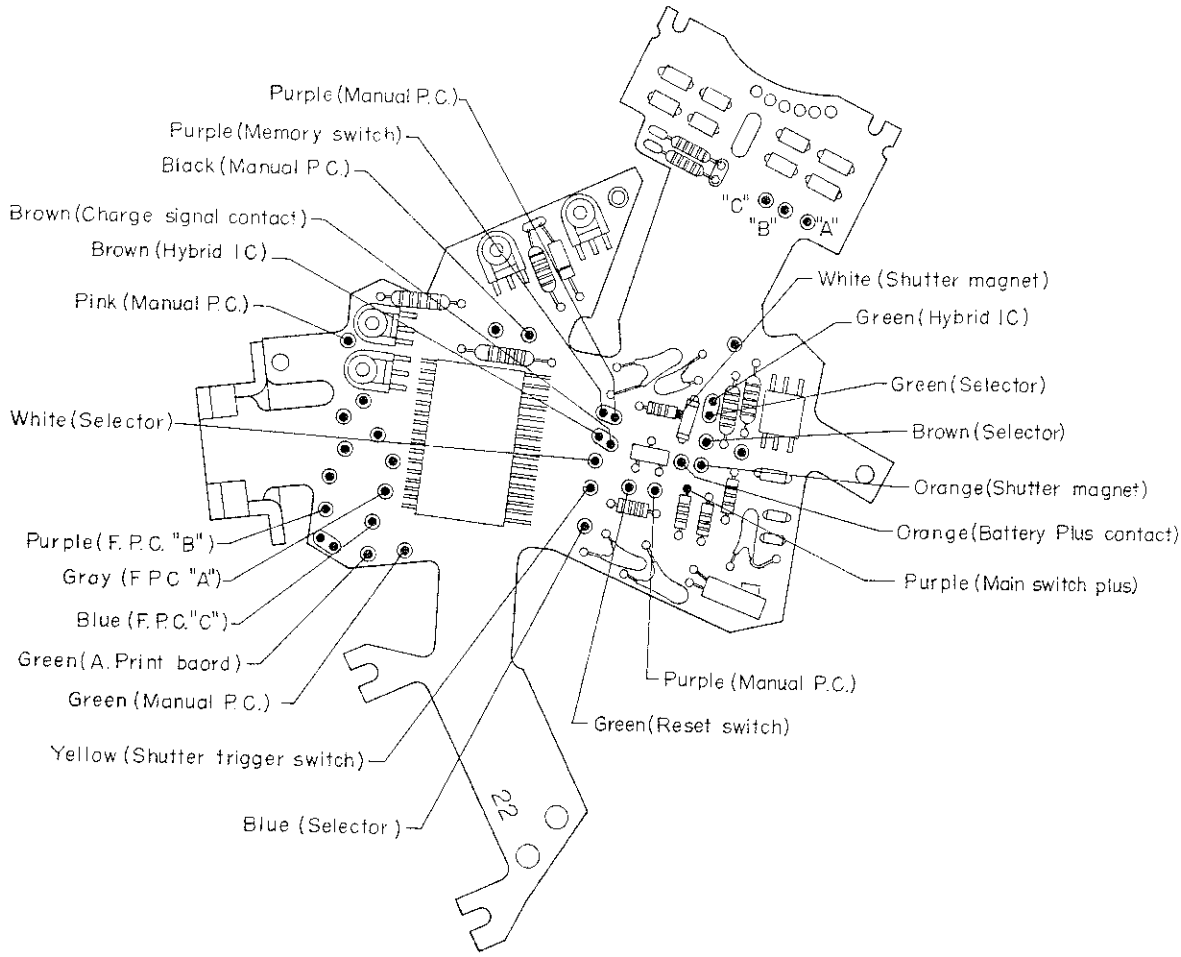
(1)	Check text "8-4 B-3" (12) to (15) in order
(2)	Orange leadwire from shutter magnet — Short
(3)	Green leadwire from reset switch — Short
(4)	Pale blue leadwires from selector and main SW — Malsolder
(5)	Purple leadwire from menory SW. and C1 terminal — Short

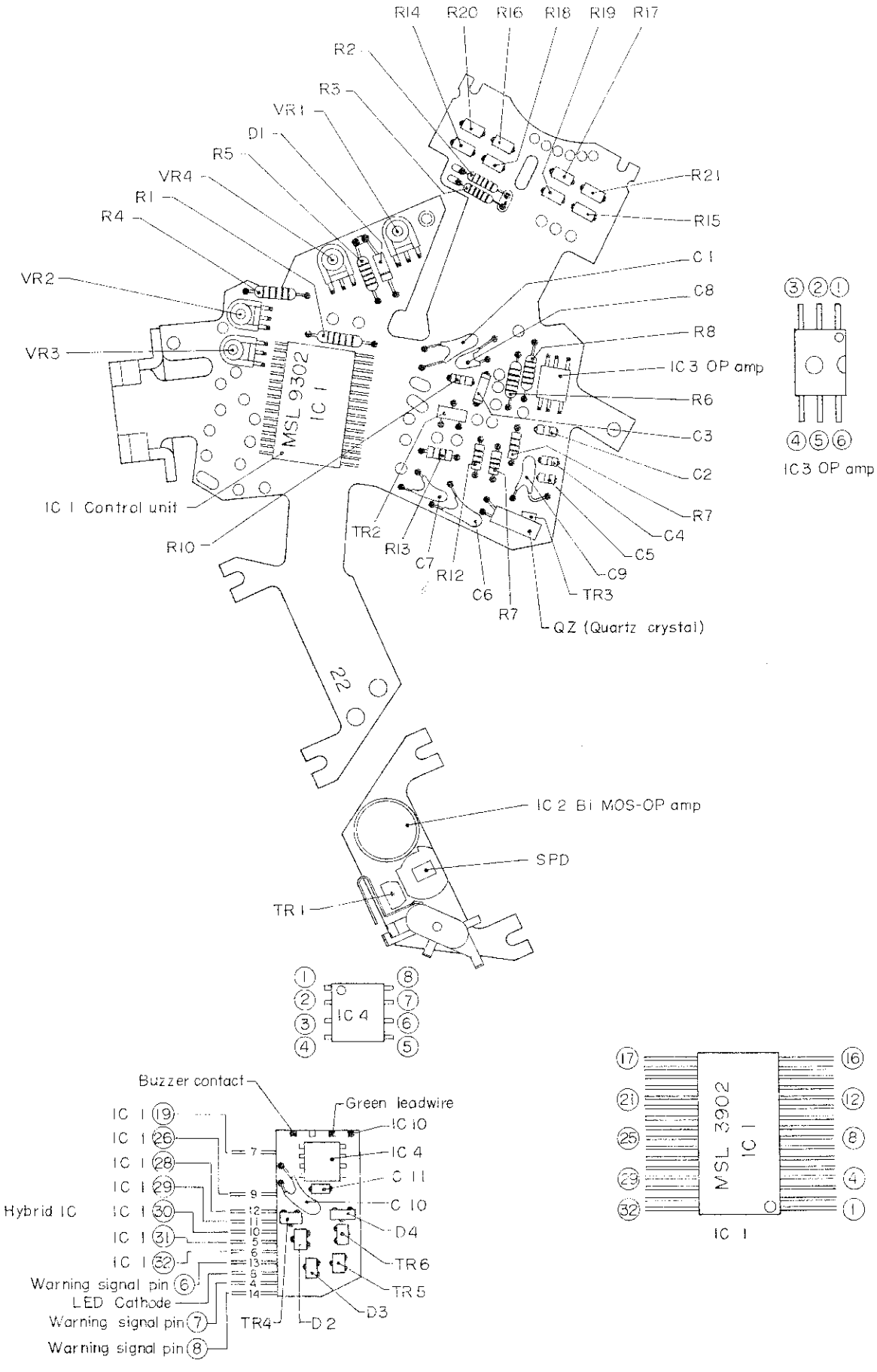
11. LED lights up at M, but not blinks

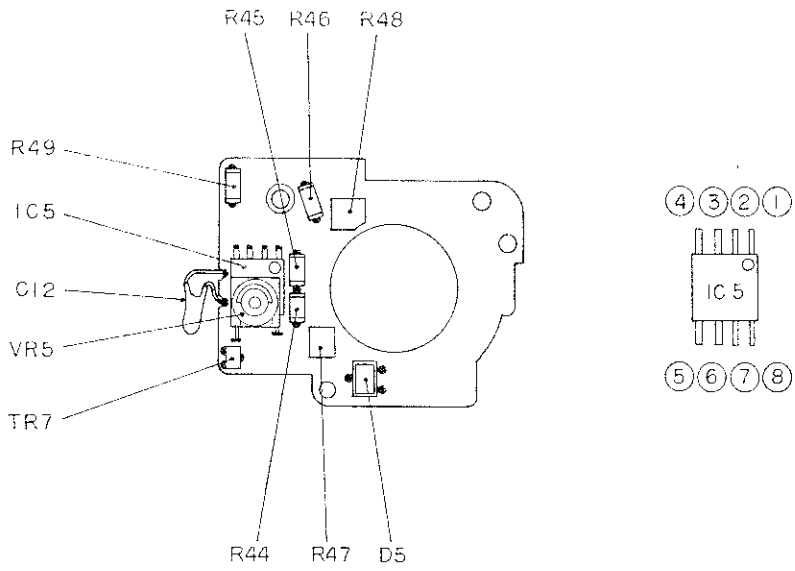
(1)	HIC - terminal ④ ⑧ — Short
(2)	Brown leadwire from selector and R7 terminal — Short

ZE 2 Electro circuit diagram

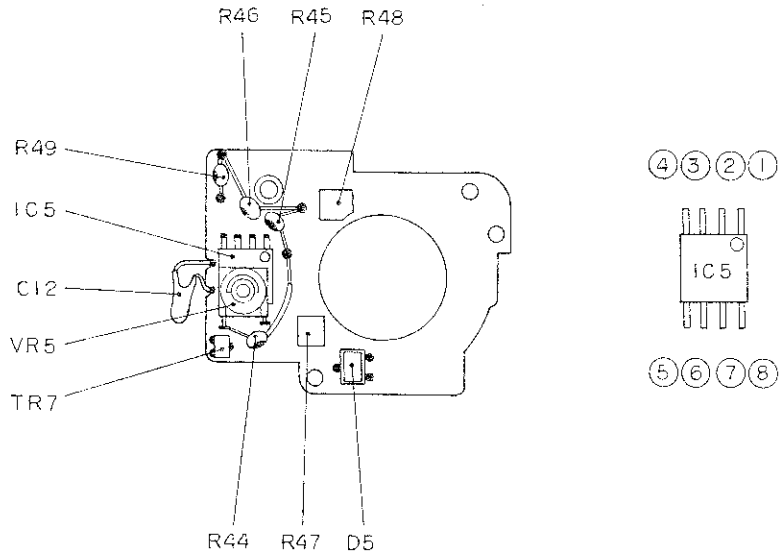



Purple (Manual P.C.)
Purple (Memory switch)
Black (Manual P.C.)
Brown (Charge signal contact)
Brown (Hybrid IC)
Pink (Manual P.C.)
White (Selector)
Purple (F.P.C. "B")
Gray (F.P.C. "A")
Blue (F.P.C. "C")
Green (A. Print baord)
Green (Manual P.C.)
Yellow (Shutter trigger switch)
Blue (Selector)
"C"
"B"
"A"
White (Shutter magnet)
Green (Hybrid IC)
Green (Selector)
Brown (Selector)
Orange (Shutter magnet)
Orange (Battery Plus contact)
Purple (Main switch plus)
Purple (Manual P.C.)
Green (Reset switch)
22


R14
R20
R16
R18
R19
R17
R2
R3
VR1
D1
R5
VR4
R1
R4
R21
R15
C1
C8
R8
IC 3 OP amp
R6
C3
C2
R7
C4
C5
C9
TR3
QZ (Quartz crystal)
C7
R12
C6
R7
TR2
R13
VR2
VR3
MSL 9302
IC 1
IC 1 Control unit
R10
22
IC 2 Bi MOS-OP amp
SPD
TR1
IC 4
Buzzer contact
Green leadwire
IC 10
IC 4
C 11
C 10
D4
TR6
TR5
D3
D2
TR4
Hybrid IC
IC 1 19
IC 1 26
IC 1 28
IC 1 29
IC 1 30
IC 1 31
IC 1 32
Warning signal pin 6
LED Cathode
Warning signal pin 7
Warning signal pin 8
MSL 3902
IC 1



New tyep



Old type

6. First set the selector to bulb position as shown in Fig.6 and install it but shutter release lever of the shutter unit must locate inside of the arm (A). (Fig. 6, 7 and 8)

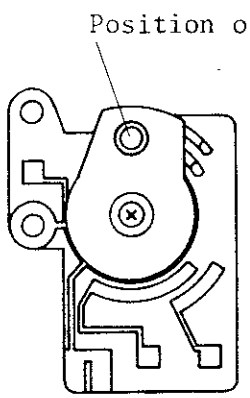


Fig.6

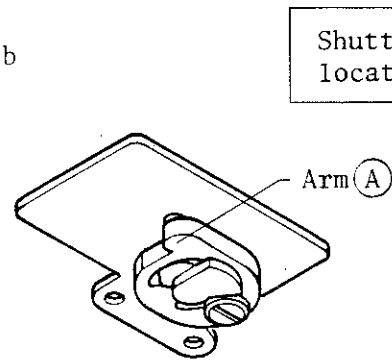


Fig.7 New type

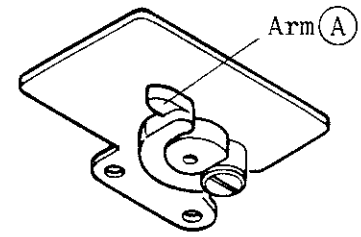


Fig.8 Old type

7. Take care not to pinch leadwires between the body and front housing group.

8. After installing the selctor, do not forget to check the bulb operation.

9. When attaching the top cover:

a. Set the selector to Auto position.(Fig. 9)

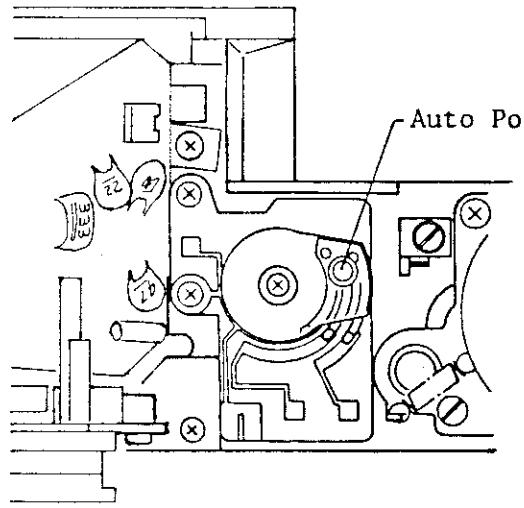
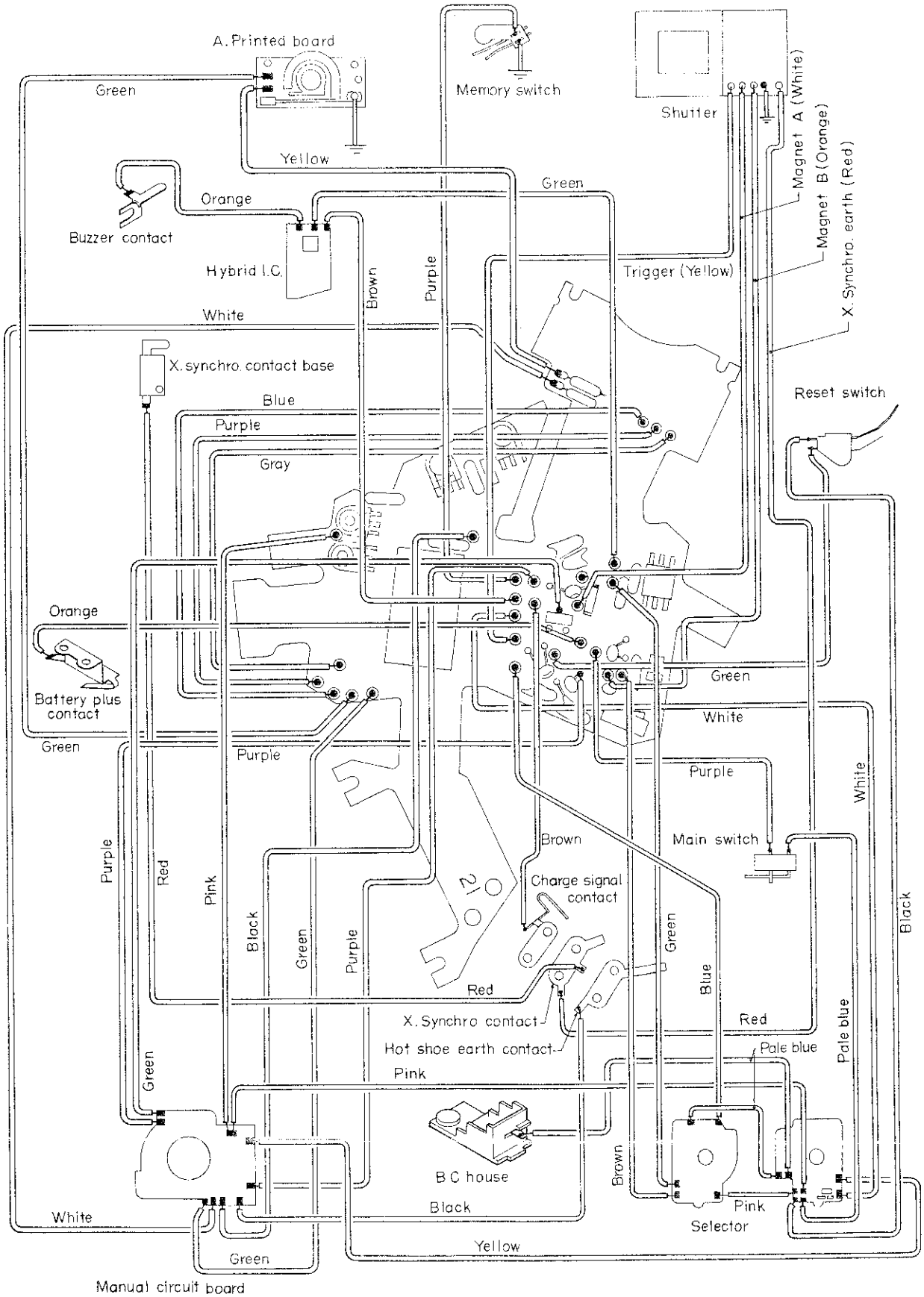
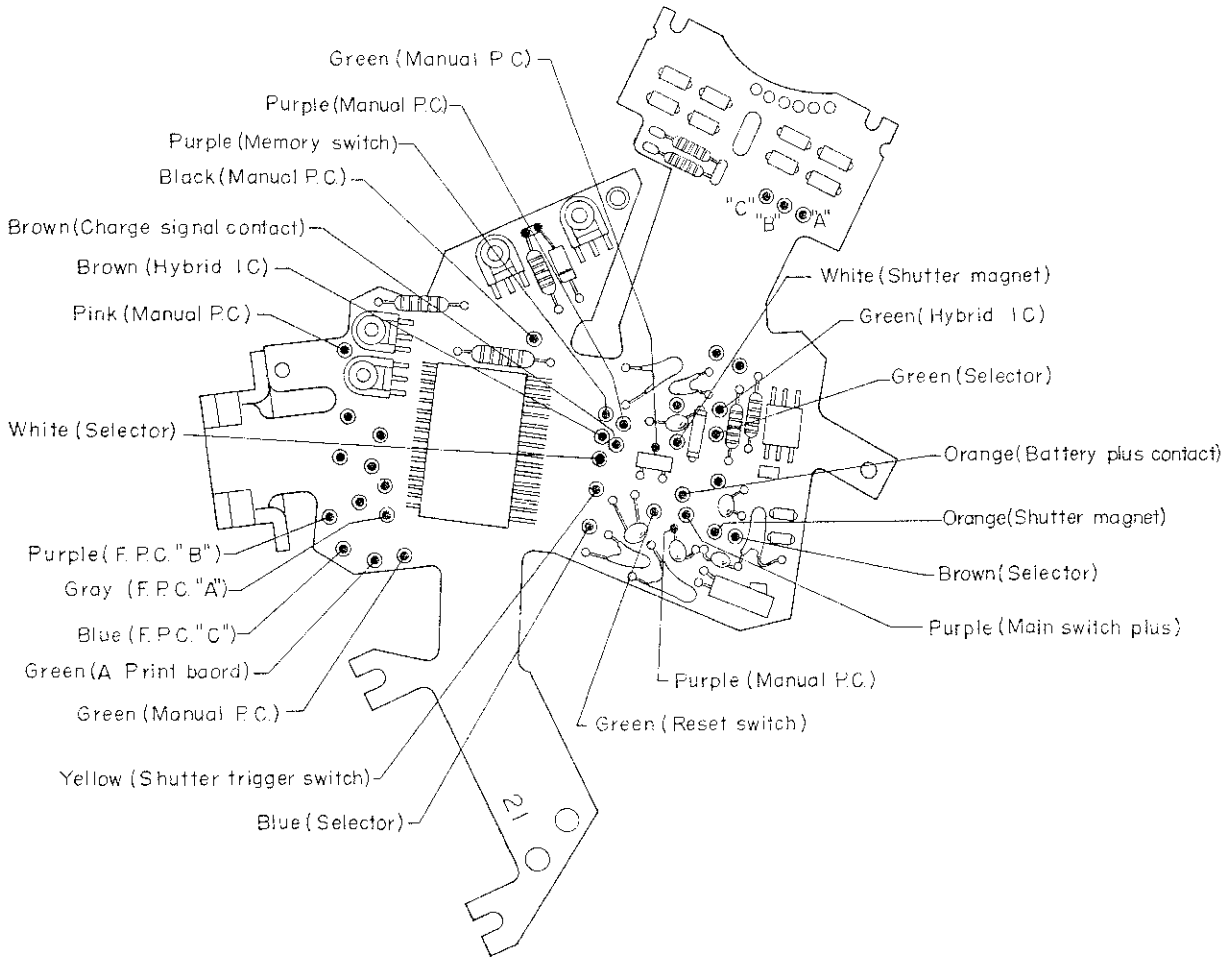
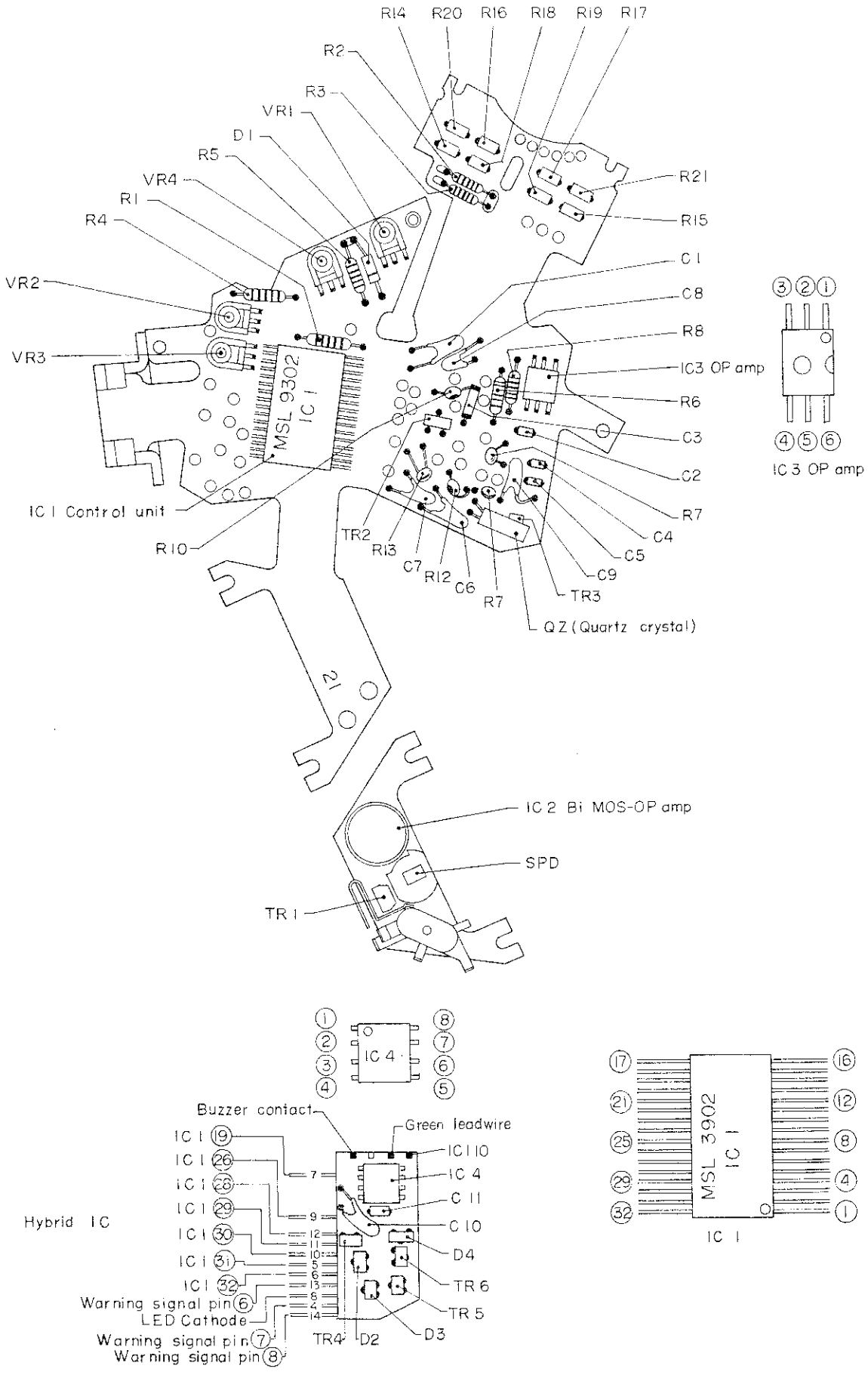


Fig.9

ZE-2 Electro circuit diagram

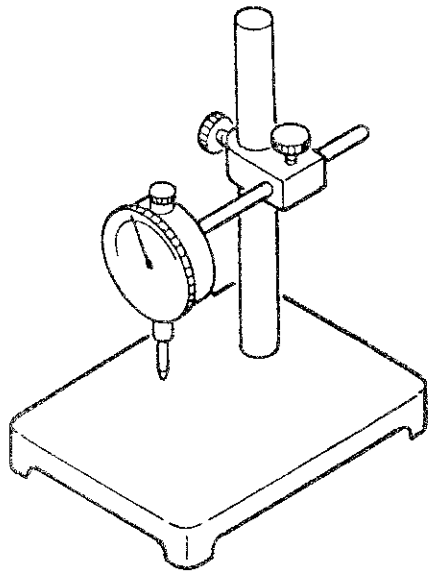



Green (Manual P C)
Purple (Manual P.C)
Purple (Memory switch)
Black (Manual P.C.)
Brown (Charge signal contact)
Brown (Hybrid I C)
Pink (Manual P.C.)
White (Selector)
Purple (F.P.C. "B")
Gray (F.P.C. "A")
Blue (F.P.C. "C")
Green (A Print baord)
Green (Manual P.C.)
Yellow (Shutter trigger switch)
Blue (Selector)
"C" "B" "A"
White (Shutter magnet)
Green (Hybrid I C)
Green (Selector)
Orange (Battery plus contact)
Orange (Shutter magnet)
Brown (Selector)
Purple (Main switch plus)
Purple (Manual P.C.)
Green (Reset switch)
21

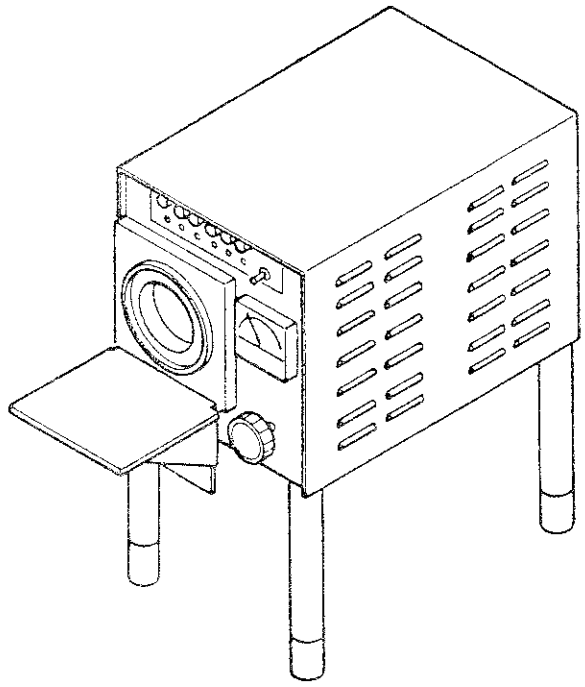

R14
R20
R16
R18
R19
R17
R2
R3
VR1
D1
R5
VR4
R1
R4
VR2
VR3
R21
R15
C1
C8
R8
IC3 OP amp
R6
C3
C2
R7
C4
C5
C9
TR3
QZ (Quartz crystal)
R7
C6
R12
C7
R13
TR2
MSL 9302
IC 1
IC 1 Control unit
R10
21
IC 2 Bi MOS-OP amp
SPD
TR 1
③②①
④⑤⑥
IC 3 OP amp
IC 4
Buzzer contact
Green leadwire
IC 1 ⑲
IC 1 ㉖
IC 1 ㉘
IC 1 ㉙
IC 1 ㉚
IC 1 ㉛
IC 1 ㉜
Warning signal pin ⑥
LED Cathode
Warning signal pin ⑦
Warning signal pin ⑧
Hybrid IC
IC 10
IC 4
C 11
C 10
D4
TR 6
TR 5
D3
D2
TR4
MSL 3902
IC 1
IC 1

Repair Tool List and Special Measuring Instruments for Mamiya ZE-2 QUARTZ

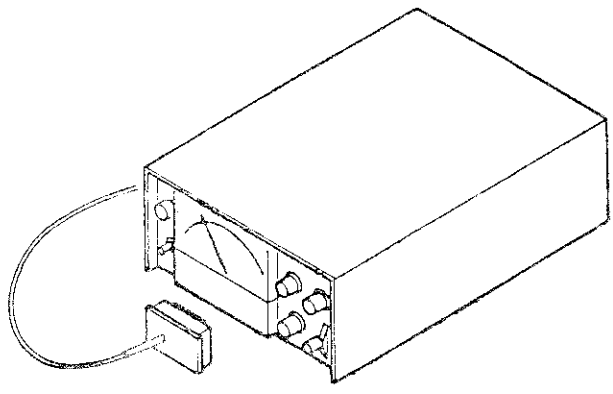
U-1 Measuring instrument with dial gauge



U-7 Light source box
Model LB360

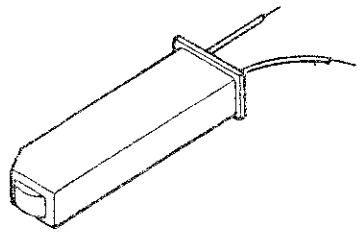


U-8 EE Camera Tester
Model CEE-1A

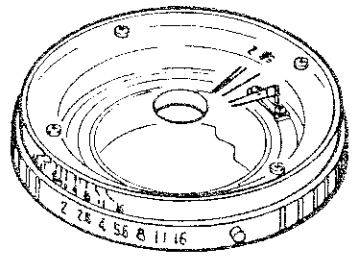


Tool list

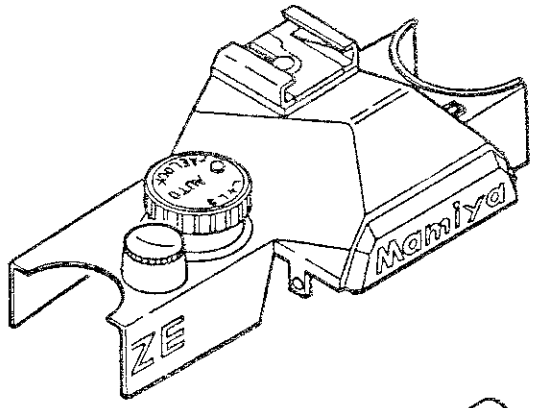
EN-1 Dummy battery
For checking battery leak
and exhaustion



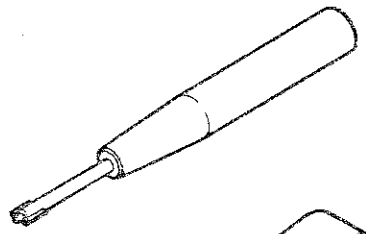
EN-2 Aperture arm position gauge
For checking and adjusting
of the aperture arm



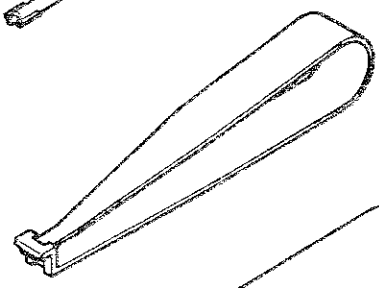
EN-3 Working top cover
For checking and
adjusting AE



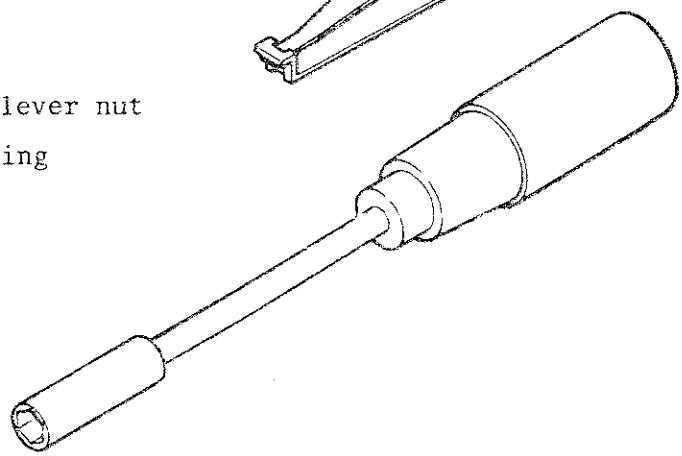
EN-4 AE adjusting driver
For adjusting AE by turning
variable resistor



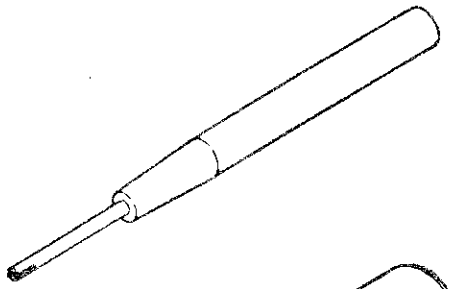
EN-5 Fresnel lens clip
For removing fresnel lens



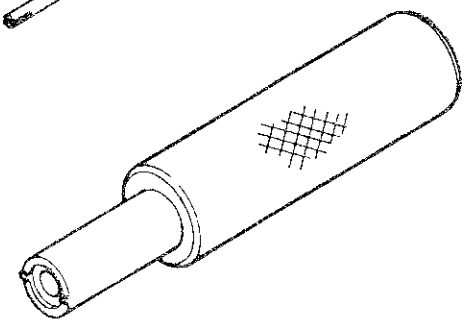
EN-6 Spanner for film advance lever nut
For tightening and loosening
winding shaft nut



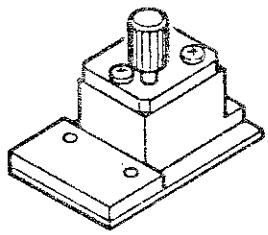
EN-7 Switch contact bender
For adjusting switch contact



EN-8 Spanner for film speed scale not
For tightening and loosening film speed compensation dial nut

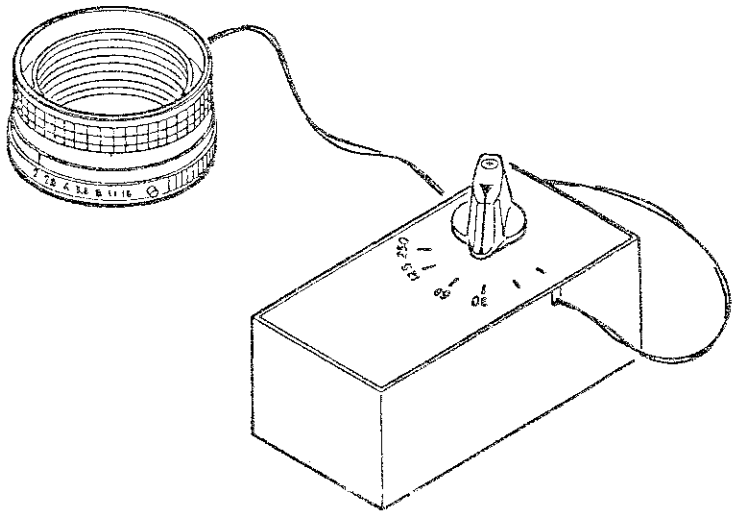


EN-9 Flash contact signal gauge
For checking flash contact signal



EN-18 Camera shake worning tester

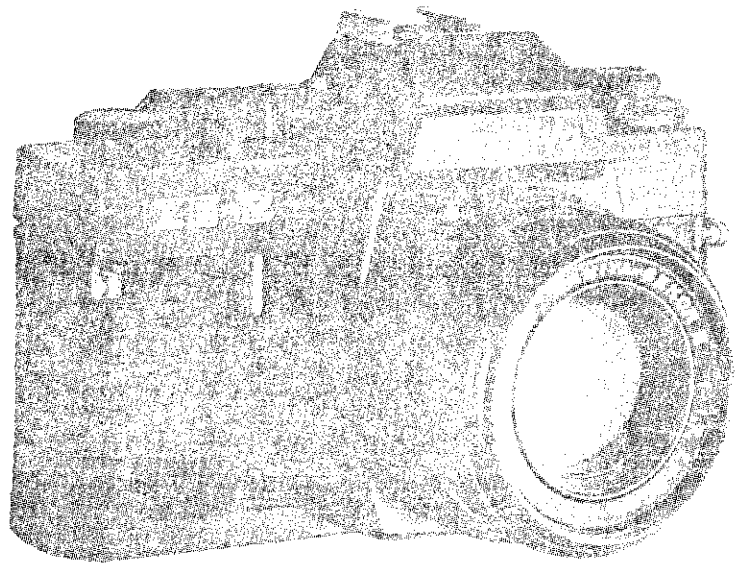
Note: The EN-18 camera warning tester is exclusively used for the ZE-2 camera, however all other tools are used in common for the ZE and ZE-2 cameras.



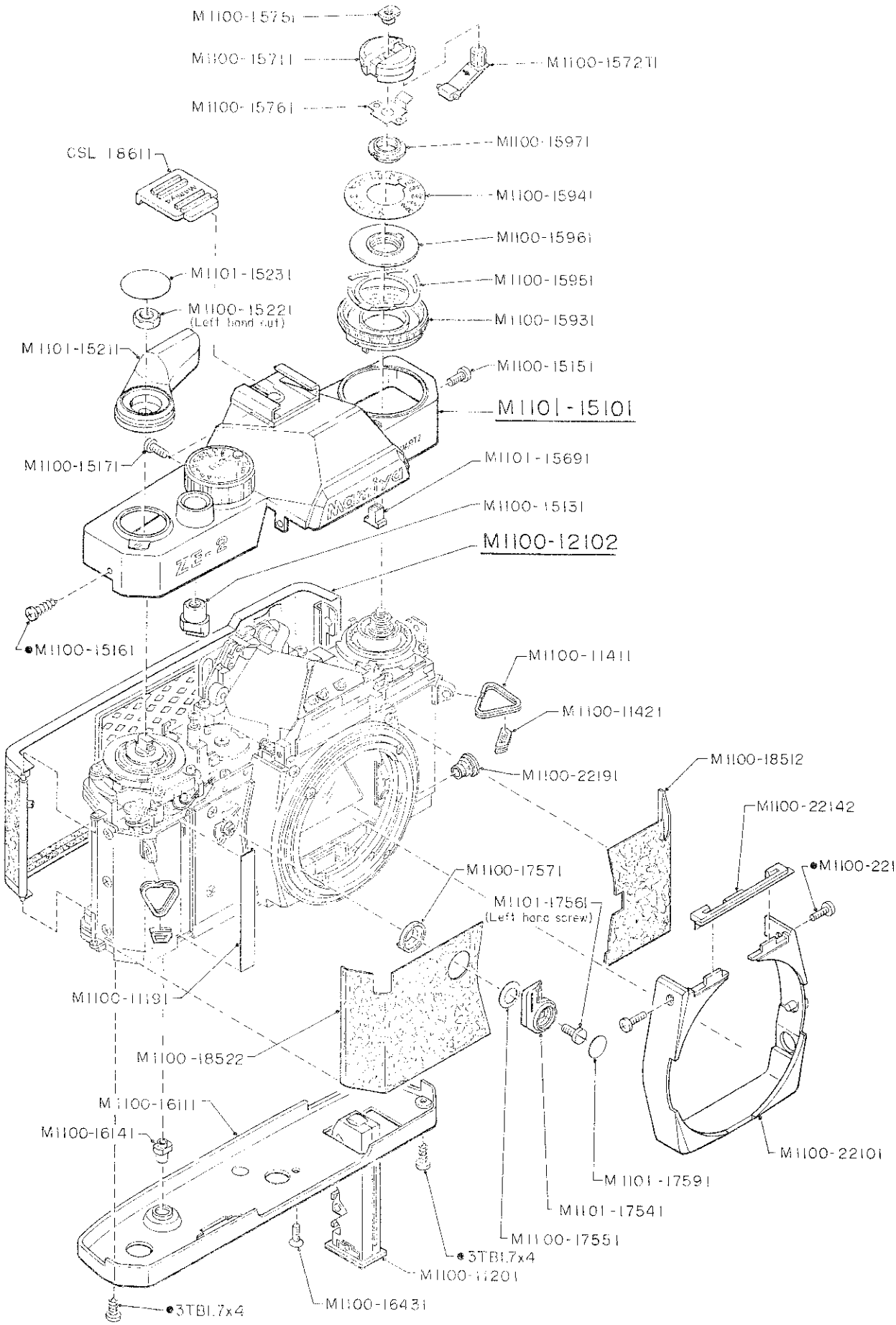
EXPLODED VIEWS

Mamiya ZE-2

QUARTZ



Mamiya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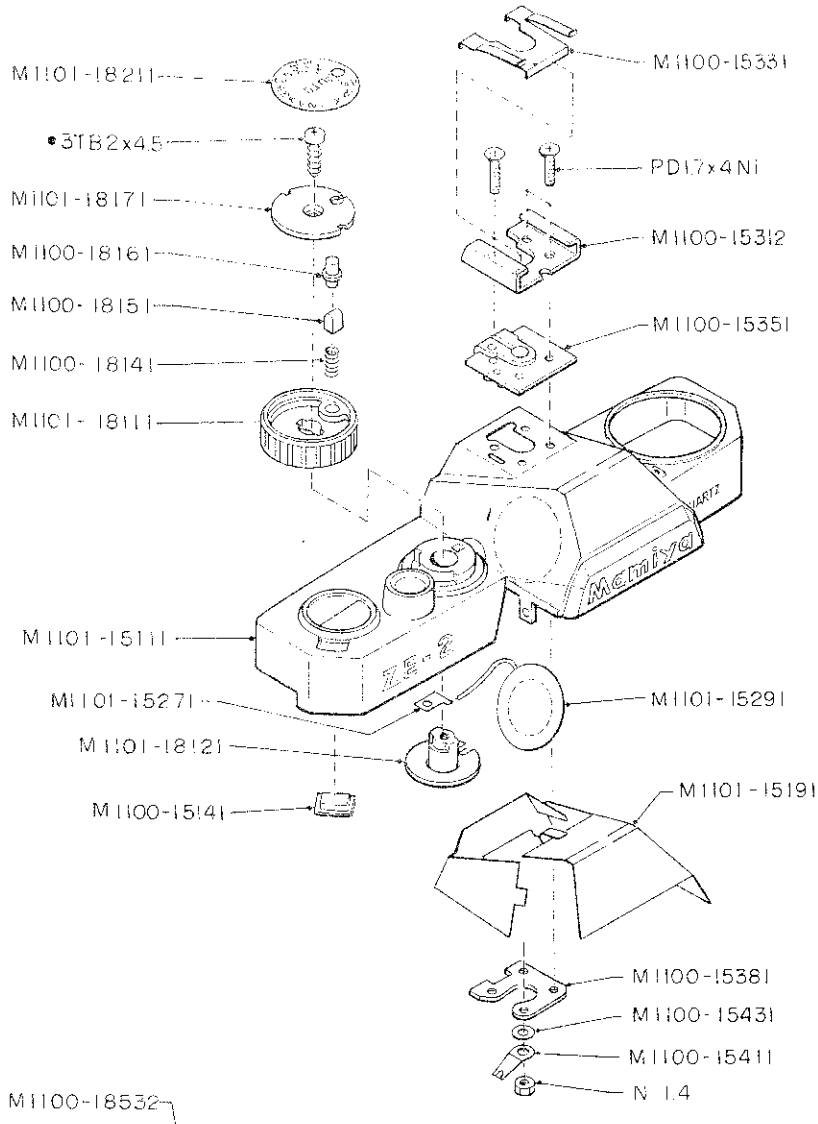
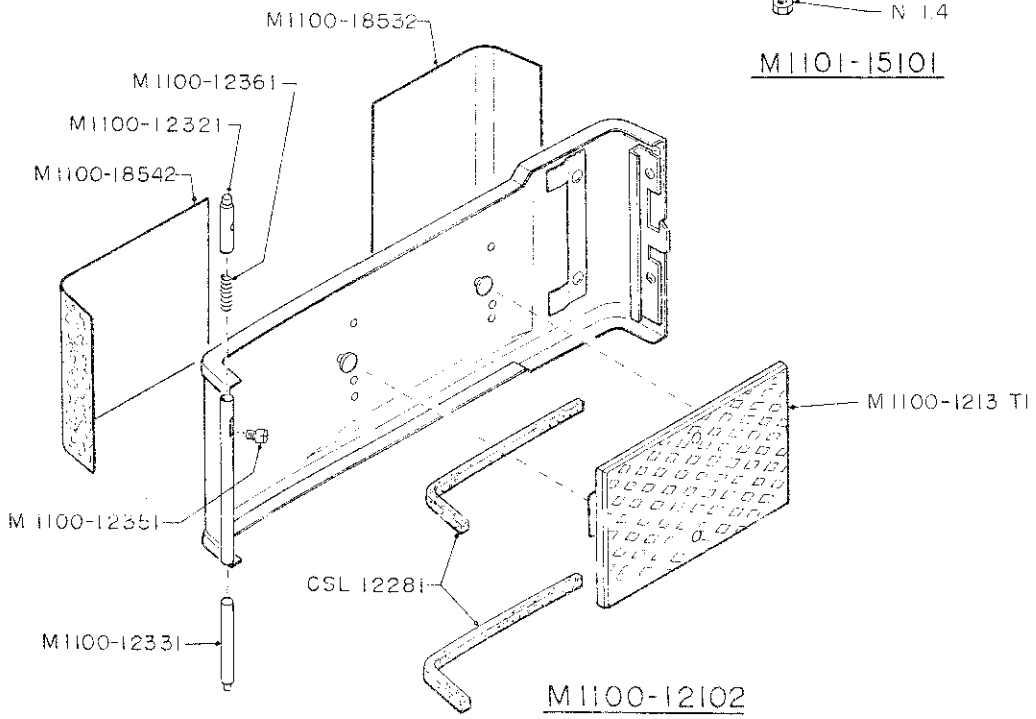
M1100-15711
M1100-15721
M1100-15761
M1100-15971
CSL 18611
M1100-15941
M1100-15961
M1101-15231
M1100-15951
M1100-15221
(Left hand cut)
M1100-15931
M1101-15211
M1100-15151
M1101-15101
M1100-15171
M1101-15691
M1100-15131
M1100-12102
Master-Lined
ZS-2
●M1100-15161
M1100-11411
M1100-11421
M1100-22191
M1100-18512
M1100-22142
●M1100-22161
M1100-17571
M1101-17561
(Left hand screw)
M1100-11191
M1100-18522
M1100-16111
M1100-16141
M1100-22101
M1101-17591
M1101-17541
M1100-17551
●3TBI.7x4
M1100-11201
M1100-16431
●3TBI.7x4



M1101-15101



M1100-12102

b. Set the selector dial of the top cover to Auto as well. (Fig. 10)

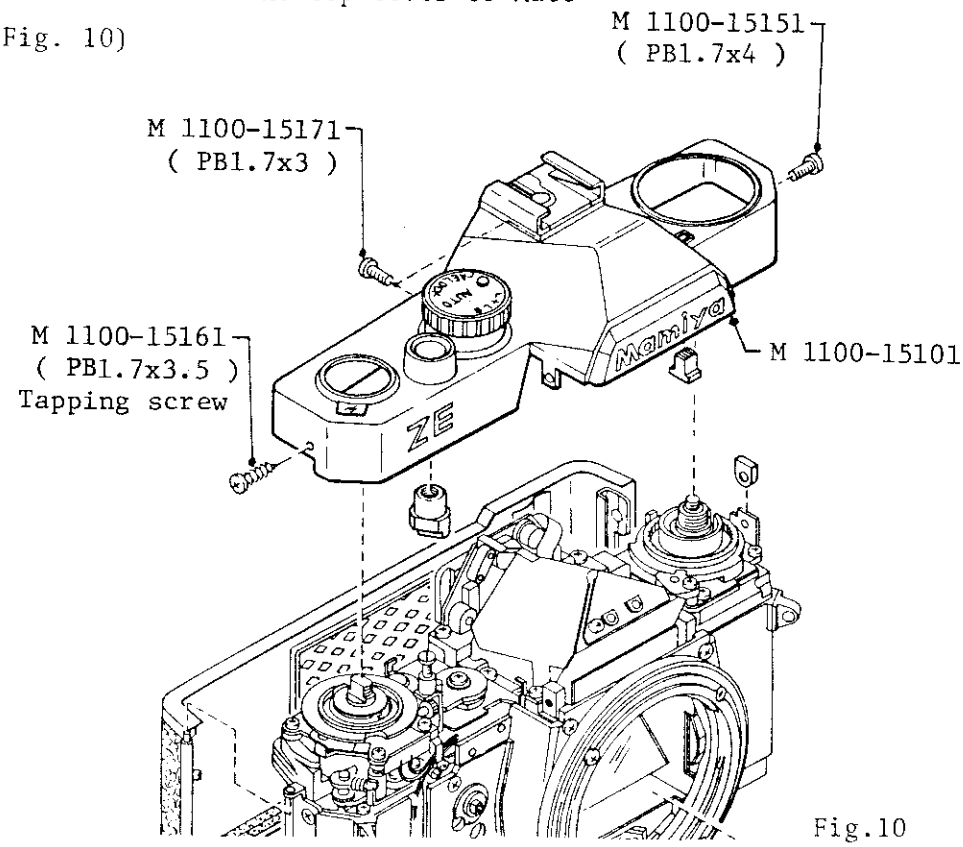


Fig.10

C. Do not mistake the four top cover fixing screws because one of them is tapping screw and their length are difference.

1-2 Disassembly of M1100-14701 bottom base plate

Note: 1. Before installing it, the shutter and mirror housing must be charged.

2. Put in order the M1100-14021 connector, M1100-14811 charge lever and M1100-1486T1 winding stop slide as shown in Fig.11.

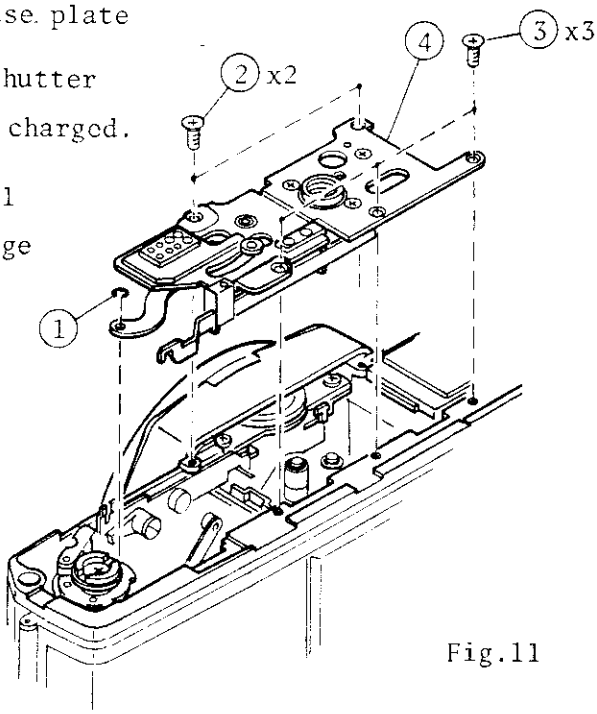
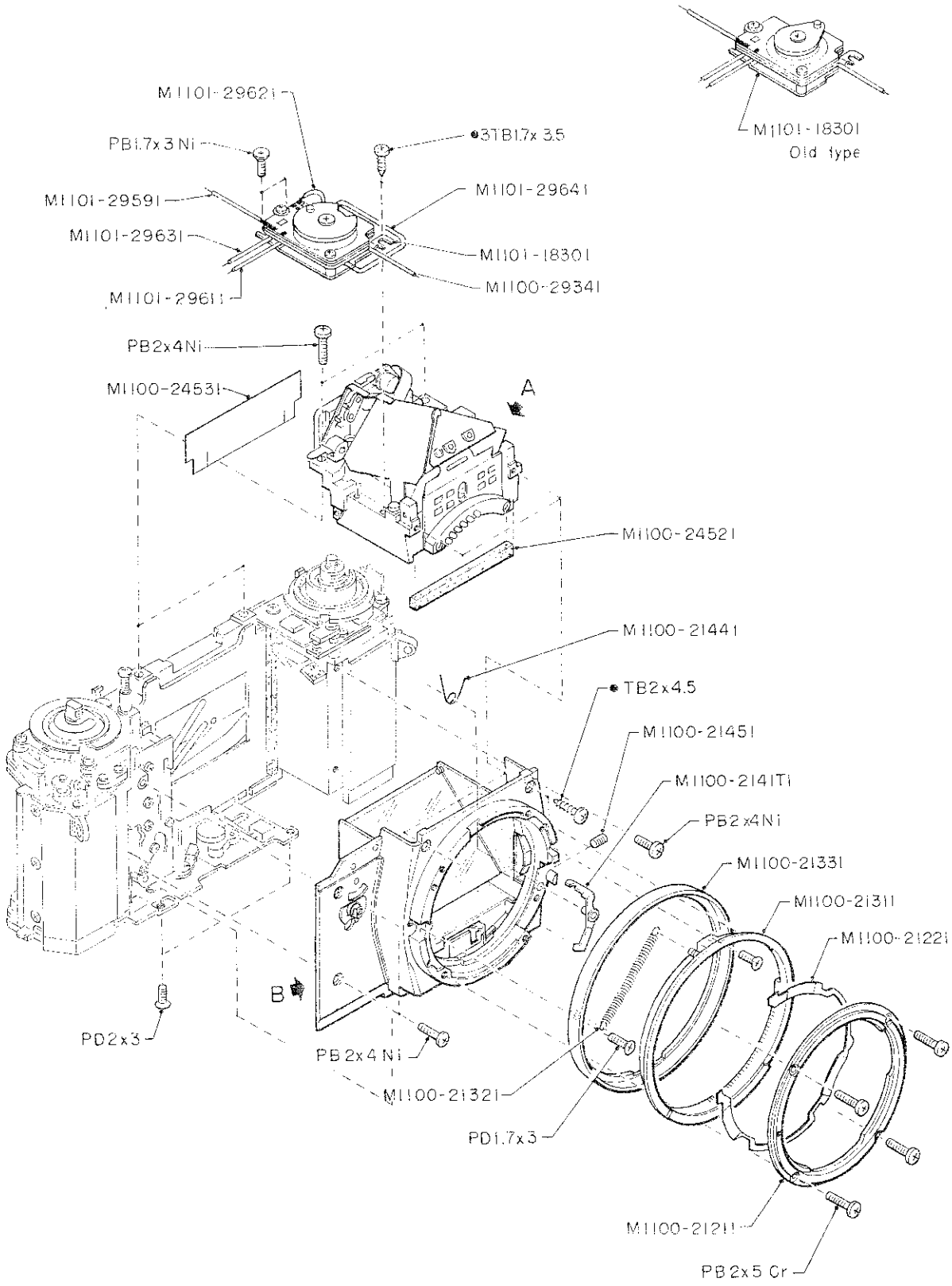
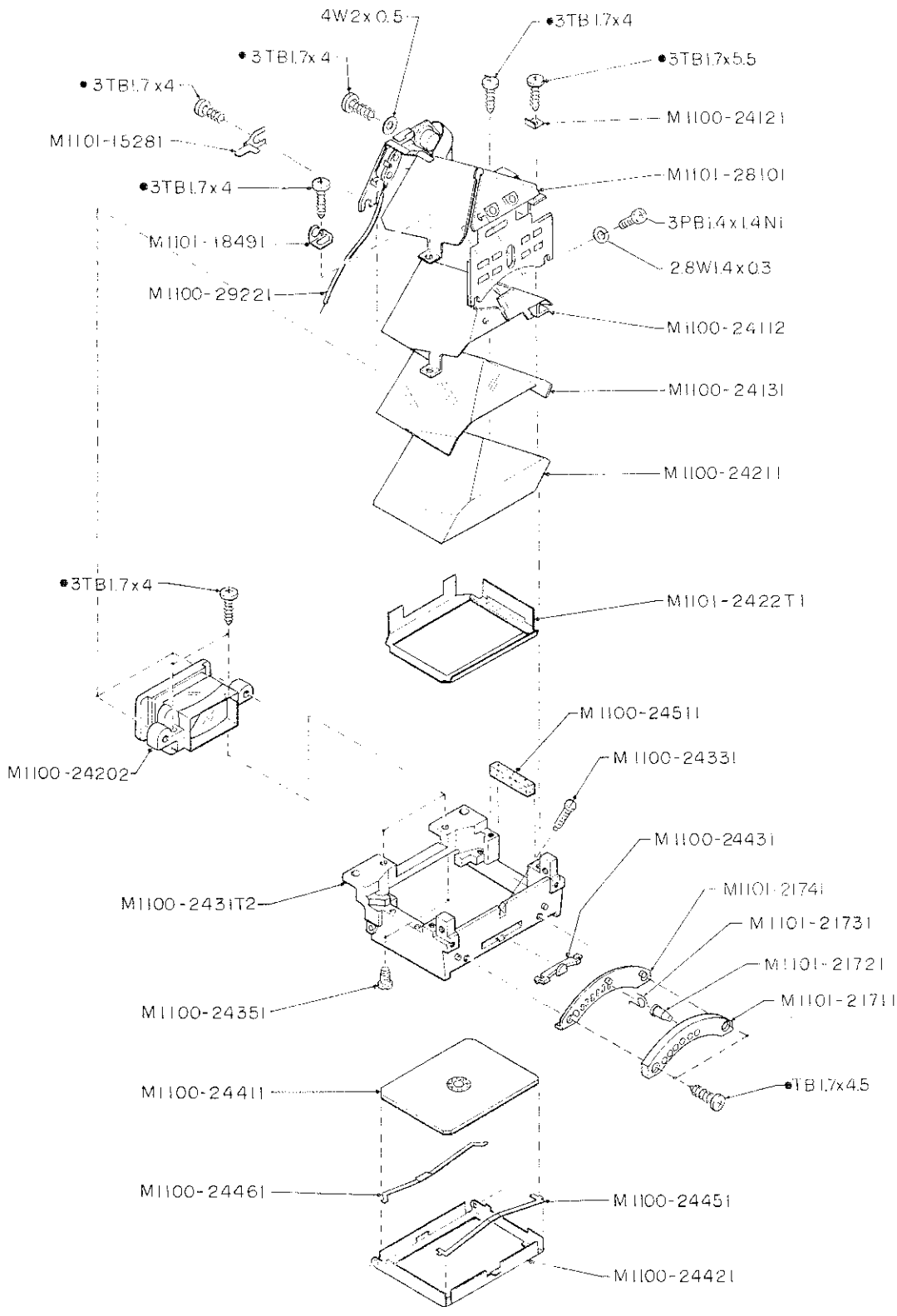
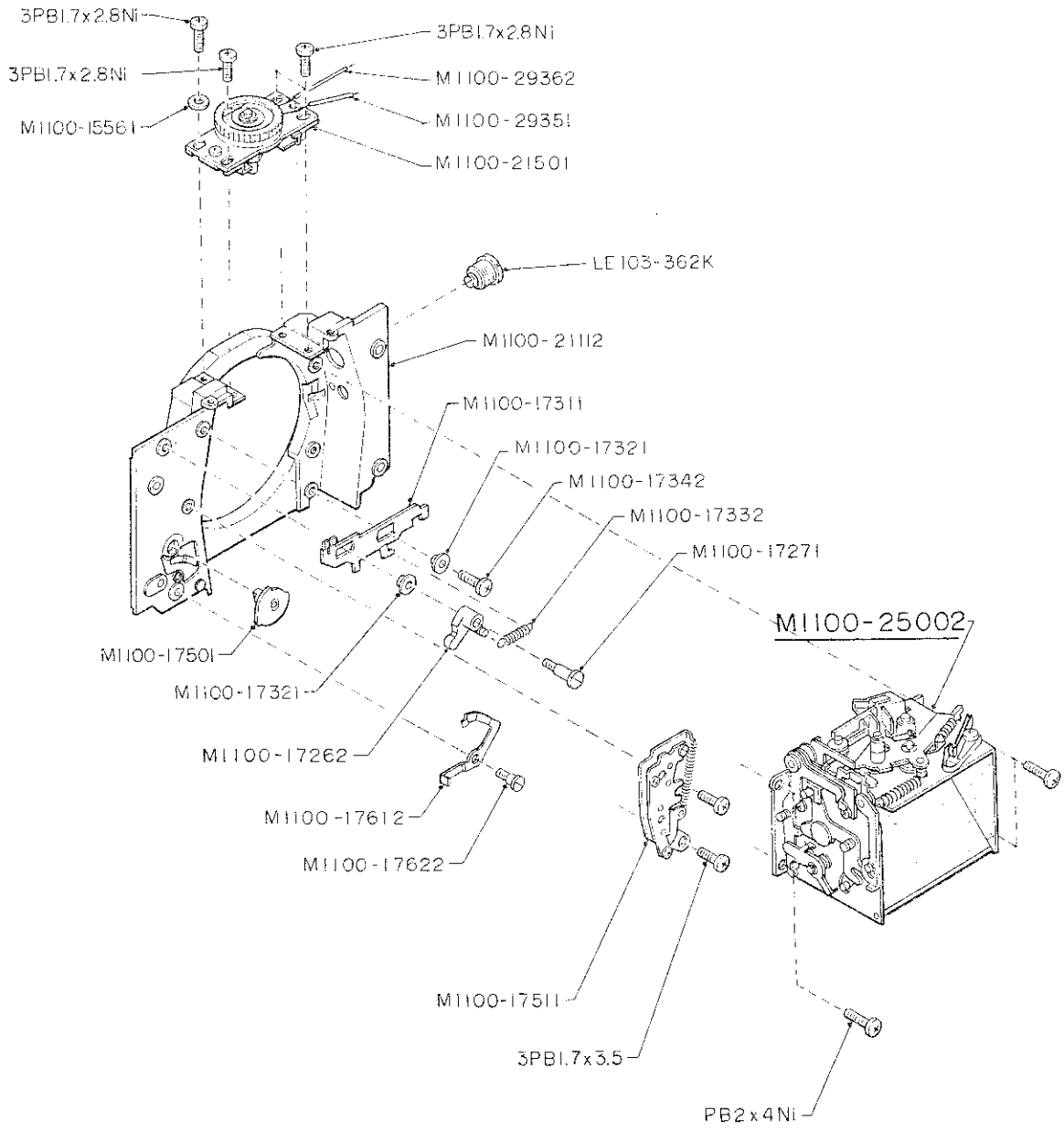


Fig.11

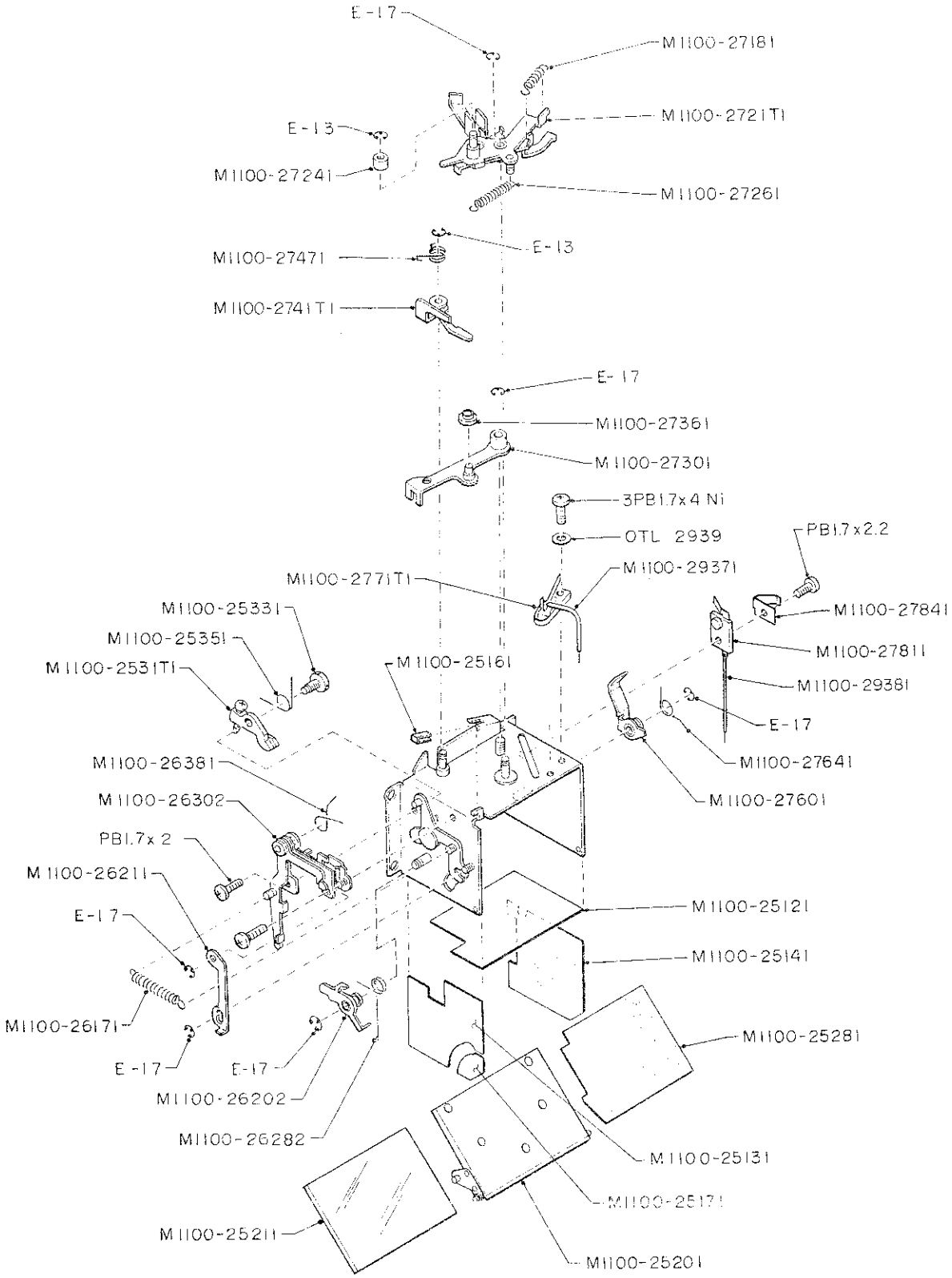

M1101-18301
Old type
M1101-29621
PB1.7x3 Ni
3TB1.7x 3.5
M1101-29591
M1101-29641
M1101-29631
M1101-18301
M1100-29341
M1101-29611
PB2x4Ni
M1100-24531
A
M1100-24521
M1100-21441
TB2x4.5
M1100-21451
M1100-21411
PB2x4Ni
M1100-21331
M1100-21311
M1100-21221
B
PD2x3
PB2x4Ni
M1100-21321
PD1.7x3
M1100-21211
PB2x5 Cr


4W2x0.5
•3TB1.7x4
•3TB1.7x4
•3TB1.7x5.5
•3TB1.7x4
M1100-24121
M1101-15281
M1101-28101
•3TB1.7x4
3PB1.4x14Ni
M1101-18491
2.8W1.4x0.3
M1100-29221
M1100-24112
M1100-24131
M1100-24211
•3TB1.7x4
M1101-2422T1
M1100-24511
M1100-24202
M1100-24331
M1100-24431
M1100-2431T2
M1101-21741
M1101-21731
M1101-21721
M1100-24351
M1101-21711
•TB1.7x4.5
M1100-24411
M1100-24461
M1100-24451
M1100-24421

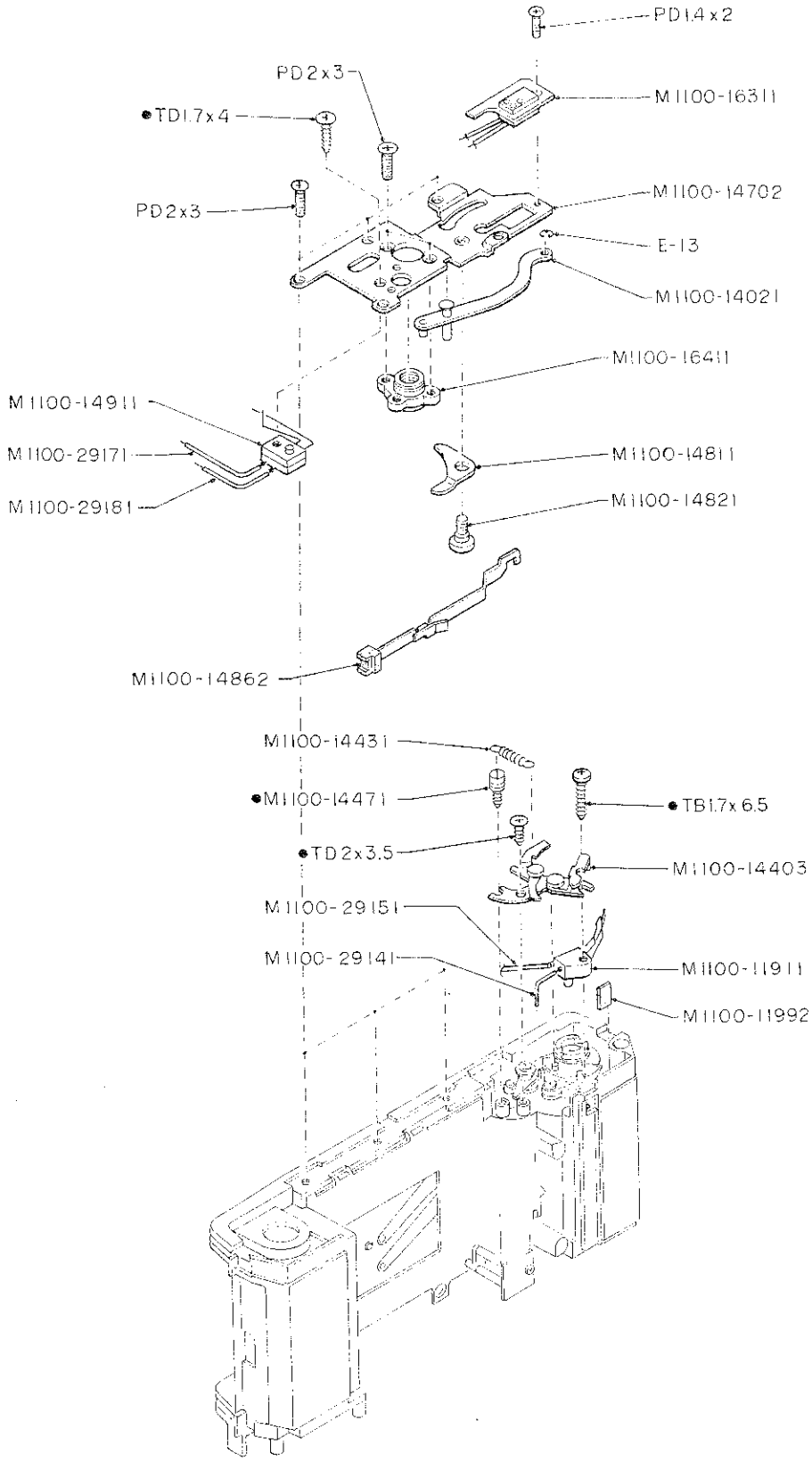
DETAIL "A"

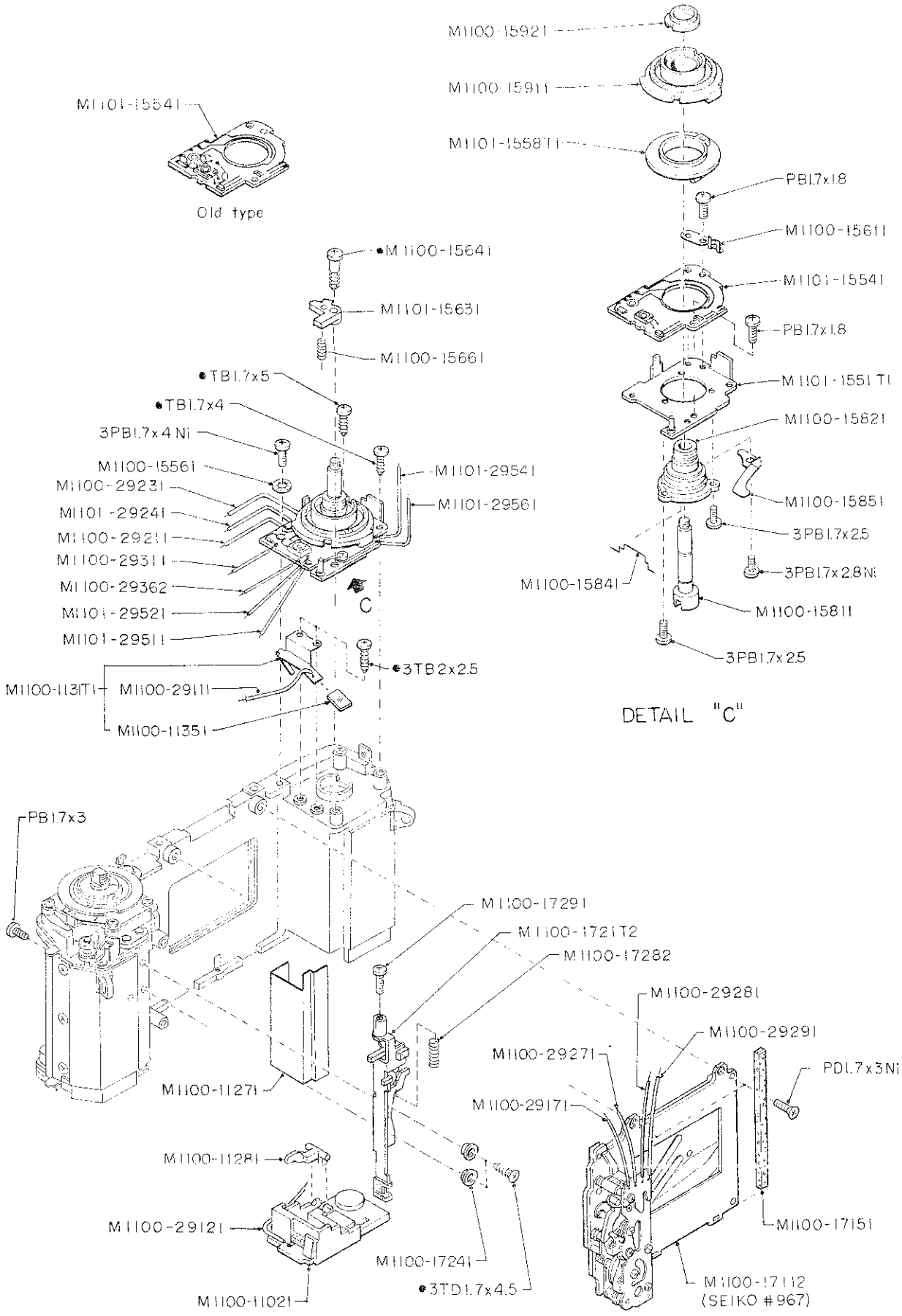

3PB1.7x2.8Ni
3PB1.7x2.8Ni
3PB1.7x2.8Ni
M1100-29362
M1100-15561
M1100-29351
M1100-21501
LE103-362K
M1100-21112
M1100-17311
M1100-17321
M1100-17342
M1100-17332
M1100-17271
M1100-25002
M1100-17501
M1100-17321
M1100-17262
M1100-17612
M1100-17622
M1100-17511
3PB1.7x3.5
PB2x4Ni

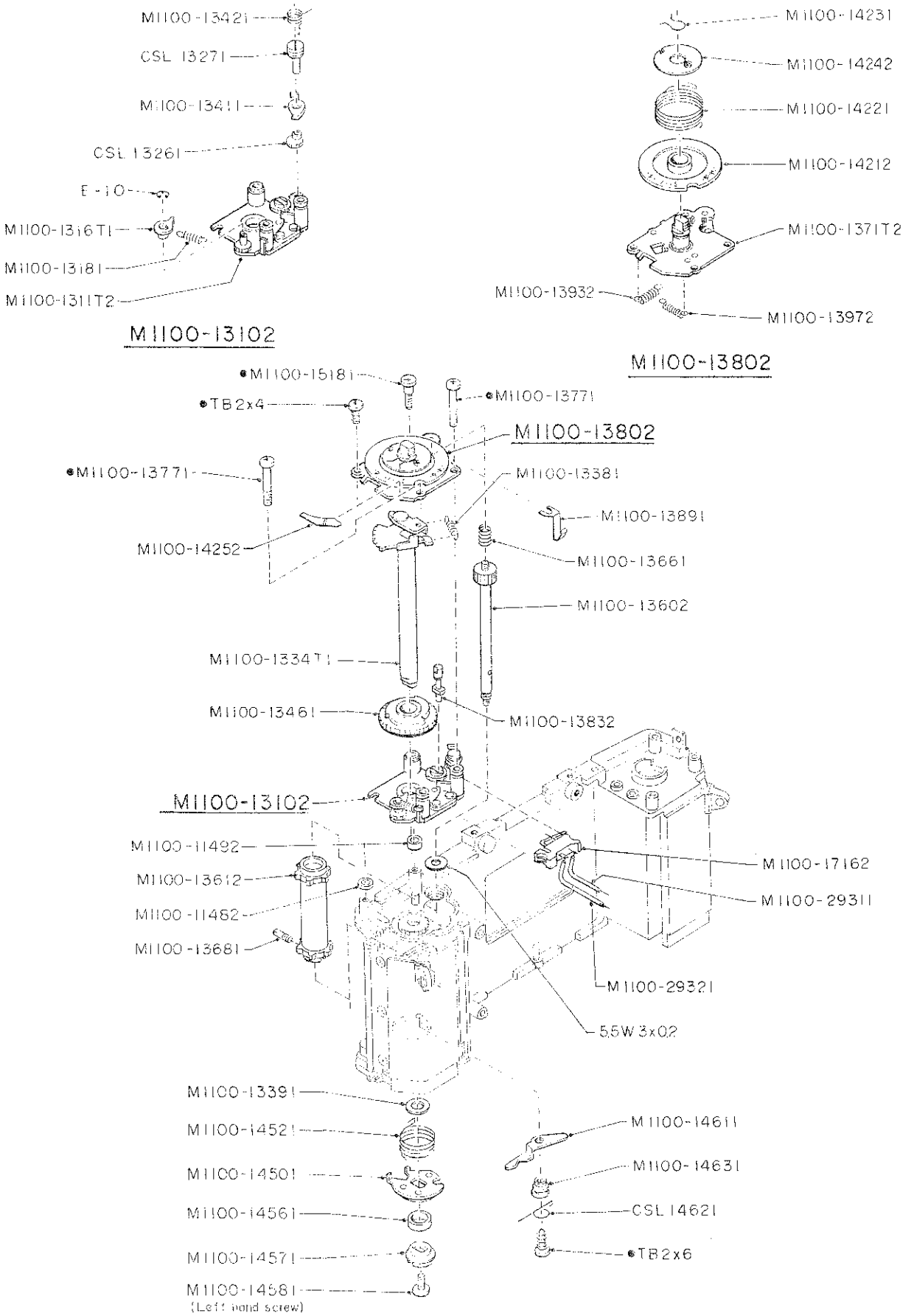
DETAIL "B"


E-17
M1100-27181
M1100-27211
E-13
M1100-27241
M1100-27261
M1100-27471
E-13
M1100-27411
E-17
M1100-27361
M1100-27301
3PB1.7x4 Ni
OTL 2939
PB1.7x2.2
M1100-27711
M1100-29371
M1100-27841
M1100-25331
M1100-25351
M1100-27811
M1100-25311
M1100-25161
M1100-29381
E-17
M1100-26381
M1100-27641
M1100-26302
M1100-27601
PB1.7x2
M1100-26211
M1100-25121
E-17
M1100-25141
M1100-26171
M1100-25281
E-17
E-17
M1100-26202
M1100-26282
M1100-25131
M1100-25171
M1100-25211
M1100-25201

M1100-25002


PD1.4x2
PD2x3
M1100-16311
●TD1.7x4
PD2x3
M1100-14702
E-13
M1100-14021
M1100-16411
M1100-14911
M1100-29171
M1100-29181
M1100-14811
M1100-14821
M1100-14862
M1100-14431
●M1100-14471
●TB1.7x6.5
●TD2x3.5
M1100-14403
M1100-29151
M1100-29141
M1100-11911
M1100-11992


M1100-15921
M1100-15911
M1101-15581T1
PB1.7x1.8
M1100-15611
M1101-15541
PB1.7x1.8
M1101-15517T1
M1100-15821
M1100-15851
3PB1.7x2.5
3PB1.7x2.8Ni
M1100-15841
M1100-15811
3PB1.7x2.5
M1101-15541
Old type
•M1100-15641
M1101-15631
M1100-15661
•TB1.7x5
•TB1.7x4
3PB1.7x4 Ni
M1100-15561
M1100-29231
M1101-29241
M1100-29211
M1100-29311
M1100-29362
M1101-29521
M1101-29511
M1101-29541
M1101-29561
C
•3TB2x2.5
M1100-11317T1
M1100-29111
M1100-11351
DETAIL "C"
PB1.7x3
M1100-17291
M1100-17217T2
M1100-17282
M1100-29281
M1100-29291
M1100-29271
PD1.7x3Ni
M1100-29171
M1100-11271
M1100-11281
M1100-29121
M1100-11021
M1100-17241
•3TD1.7x4.5
M1100-17151
M1100-17112
(SEIKO #967)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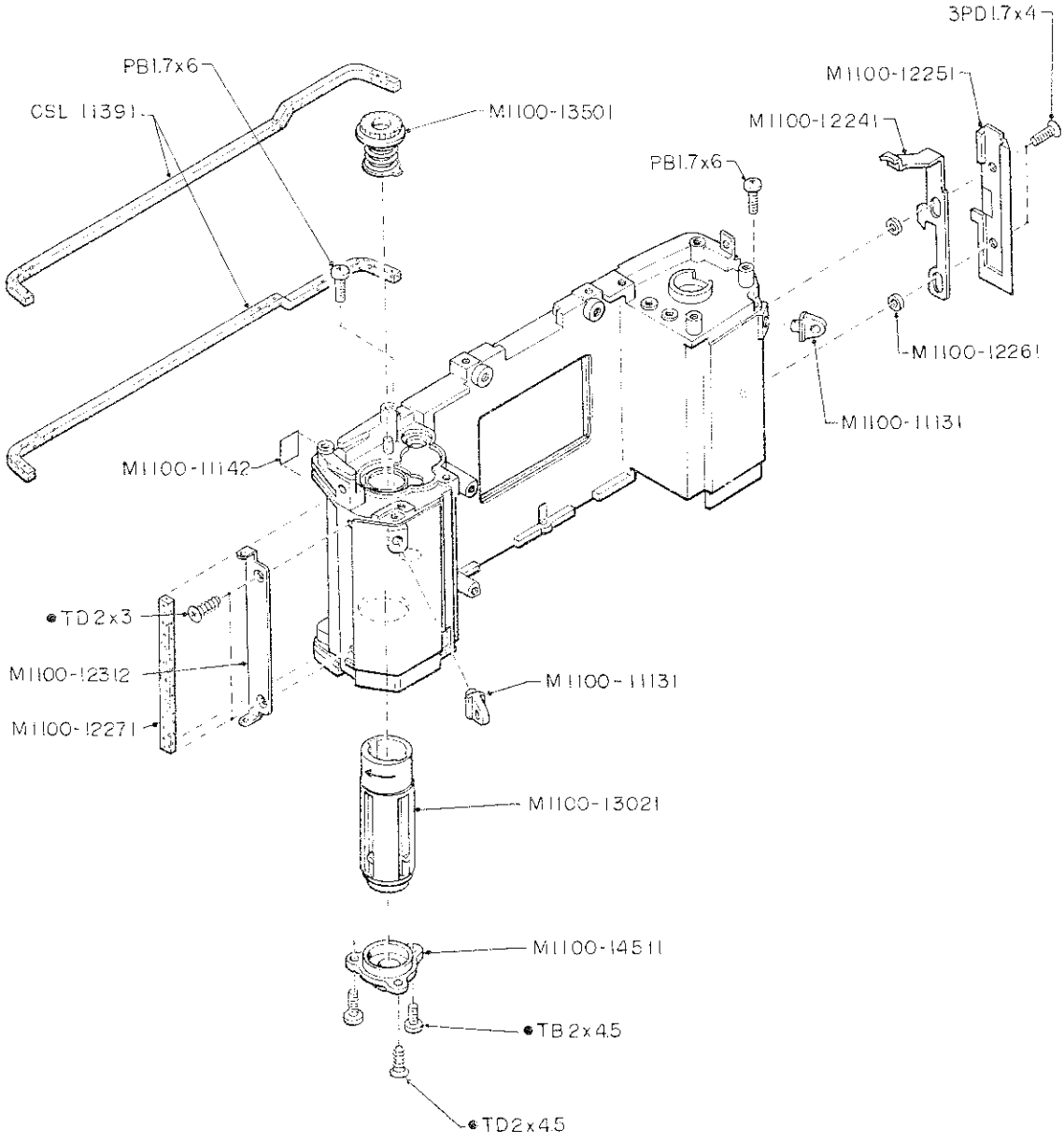
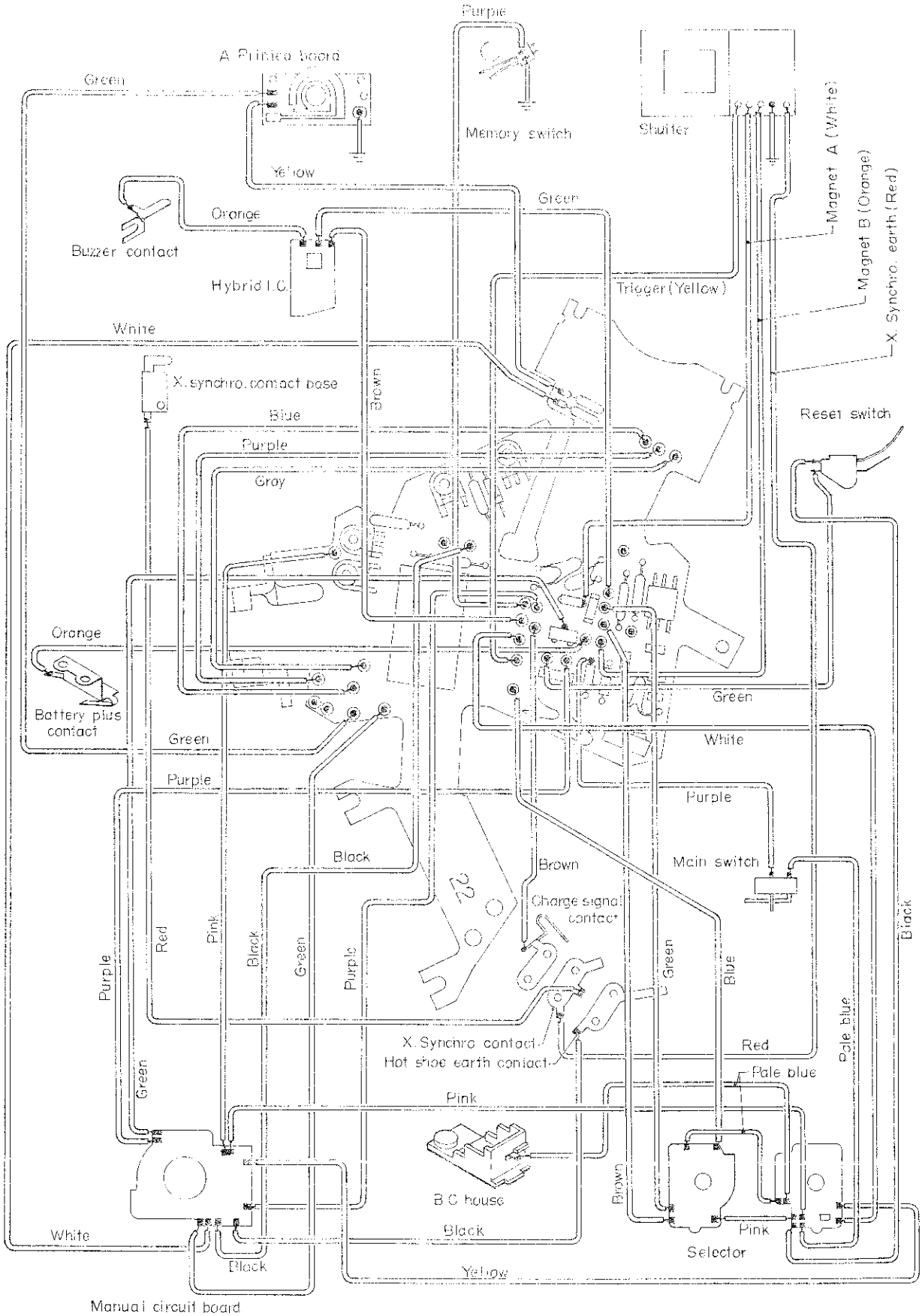
CSL 13271
M1100-13411
CSL 13261
E-10
M1100-13161
M1100-13181
M1100-13111T2
M1100-13102
M1100-14231
M1100-14242
M1100-14221
M1100-14212
M1100-1371T2
M1100-13932
M1100-13972
M1100-13802
*M1100-15181
*TB2x4
*M1100-13771
M1100-13802
*M1100-13771
M1100-13581
M1100-13891
M1100-14252
M1100-13661
M1100-13602
M1100-1334T1
M1100-13461
M1100-13832
M1100-13102
M1100-11492
M1100-13612
M1100-11482
M1100-13681
M1100-17162
M1100-29311
M1100-29321
5.5W3x02
M1100-13391
M1100-14521
M1100-14501
M1100-14561
M1100-14571
M1100-14581
(Left hand screw)
M1100-14611
M1100-14631
CSL 14621
*TB2x6


3PD1.7x4
PB1.7x6
M1100-12251
CSL 11391
M1100-13501
M1100-12241
PB1.7x6
M1100-12261
M1100-11131
M1100-11142
●TD2x3
M1100-12312
M1100-12271
M1100-11131
M1100-13021
M1100-14511
●TB2x4.5
●TD2x4.5

ZE-2 Electronic circuit diagram

Type 21 & Type 22

ZE-2 Electro circuit diagram



3. Check position of black leadwire from the B.C house and the M1100-11281 flip lever.

4. When installing the M1100-14701 bottom base plate, first join the connector with the winding crank pin.

   Note: Pay attention because the M1100-1486T1 winding stop slide is very liable to come off from its position.

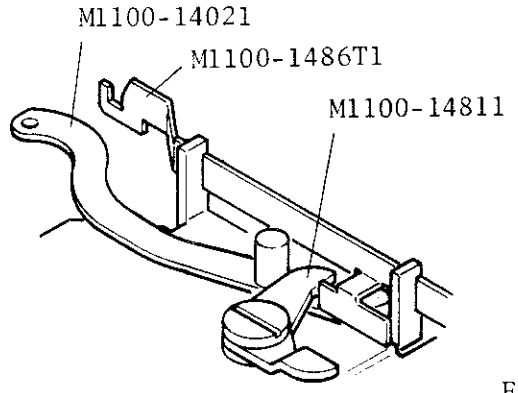


Fig.12

5. Check that the winding safety arm is coupled with winding stop slide. (Fig. 13)

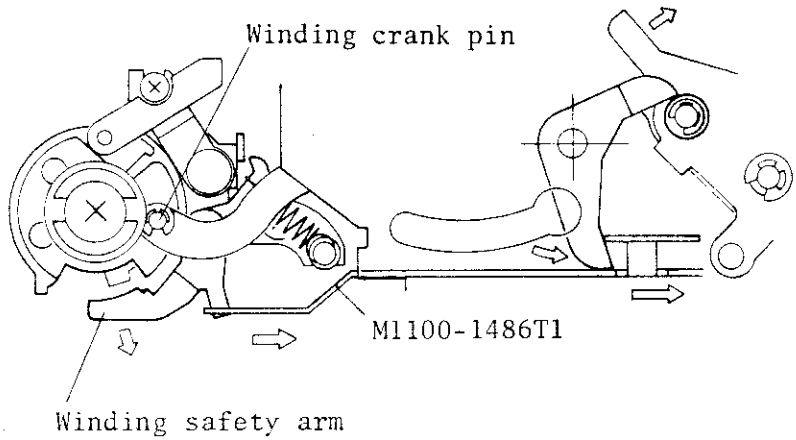
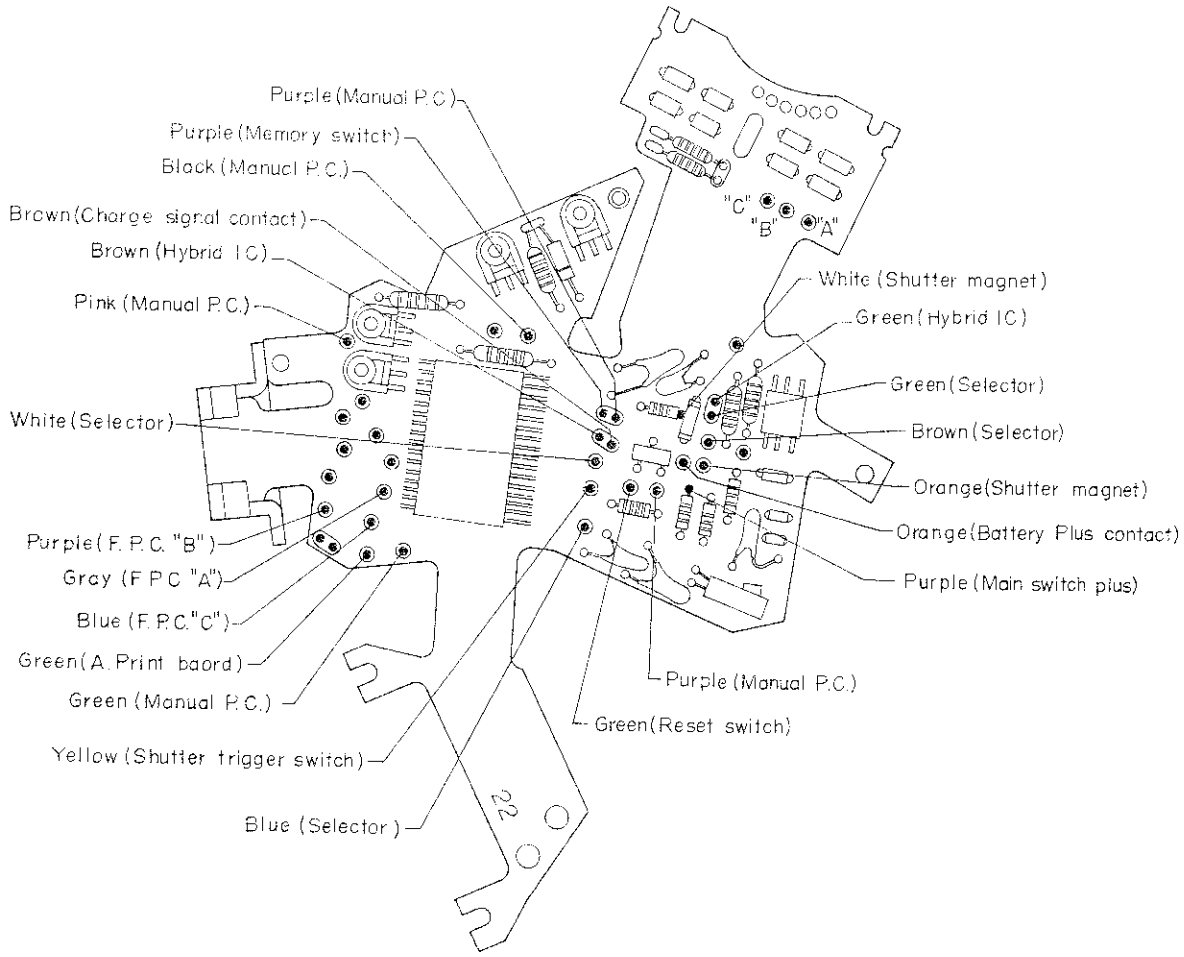
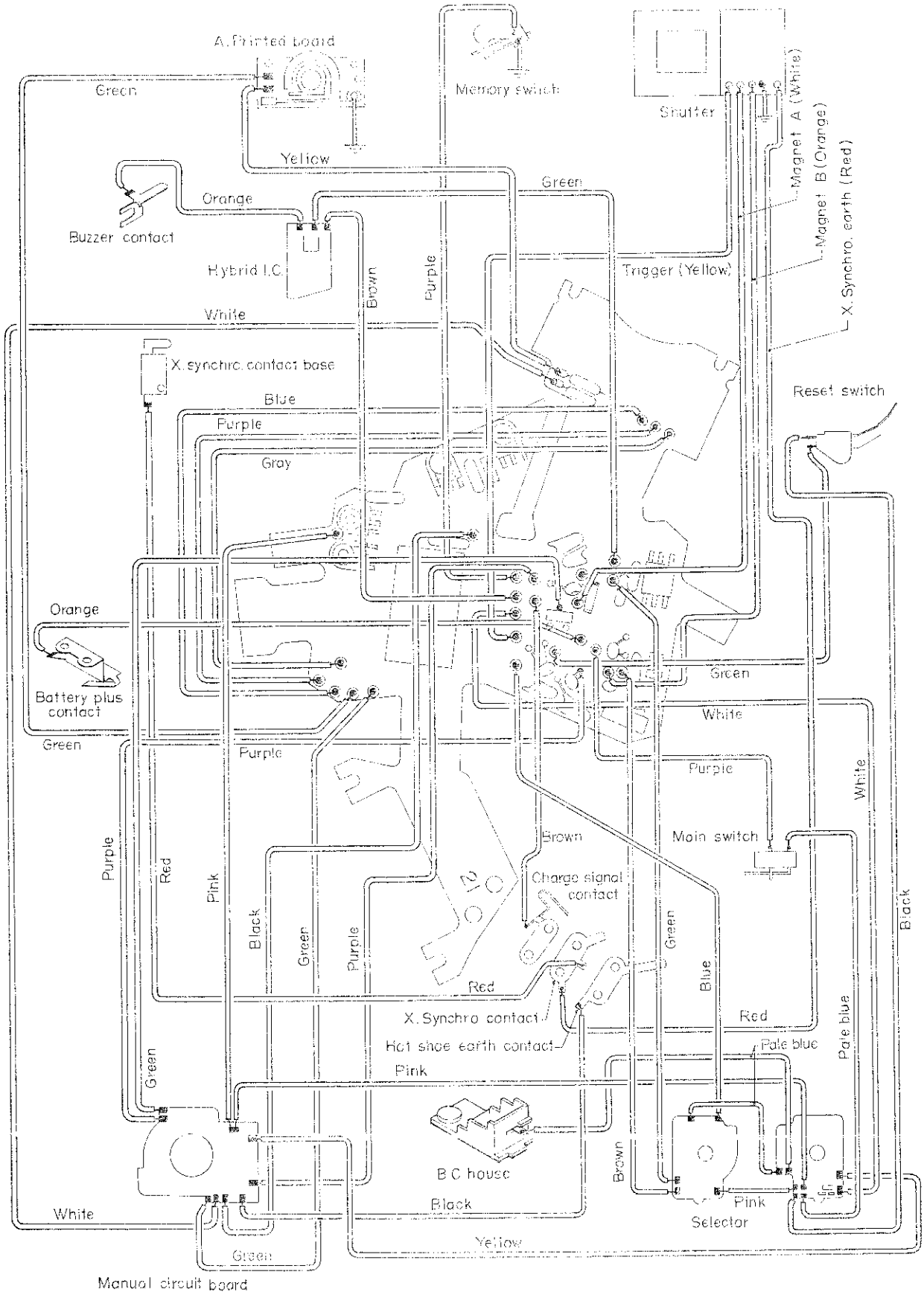
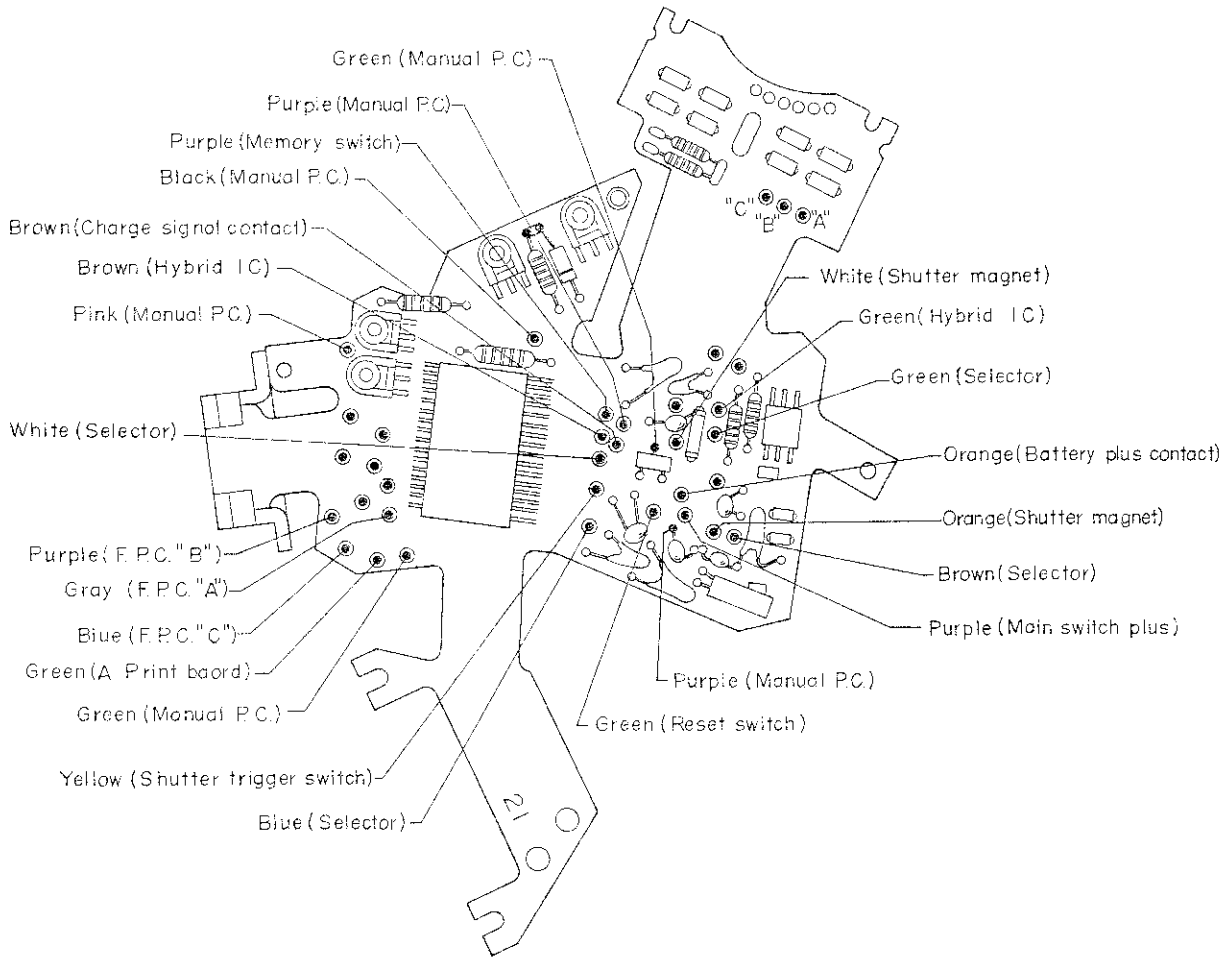


Fig.13


Purple (Manual P.C.)
Purple (Memory switch)
Black (Manucl P.C.)
Brown (Charge signal contact)
Brown (Hybrid I.C.)
Pink (Manual P.C.)
White (Selector)
Purple (F.P.C. "B")
Gray (F.P.C. "A")
Blue (F.P.C. "C")
Green (A. Print baord)
Green (Manual P.C.)
Yellow (Shutter trigger switch)
Blue (Selector)
"C"
"B"
"A"
White (Shutter magnet)
Green (Hybrid I.C.)
Green (Selector)
Brown (Selector)
Orange (Shutter magnet)
Orange (Battery Plus contact)
Purple (Main switch plus)
Purple (Manual P.C.)
Green (Reset switch)
22

ZE-2 Electro circuit diagram




Green (Manual P.C)
Purple (Manual P.C)
Purple (Memory switch)
Black (Manual P.C.)
Brown (Charge signal contact)
Brown (Hybrid IC)
Pink (Manual P.C.)
White (Selector)
Purple (F.P.C. "B")
Gray (F.P.C. "A")
Blue (F.P.C. "C")
Green (A Print baord)
Green (Manual P.C.)
Yellow (Shutter trigger switch)
Blue (Selector)
"C" "B" "A"
White (Shutter magnet)
Green (Hybrid IC)
Green (Selector)
Orange (Battery plus contact)
Orange (Shutter magnet)
Brown (Selector)
Purple (Main switch plus)
Purple (Manual P.C.)
Green (Reset switch)
21

PARTS LIST

Mamiya ZE-2

QUARTZ

Mamiya

The screw which has a mark of black circle dot on head of the its identification number is new type screw, so called "Tapping screw".

For example: ● TB2 x 4 ----------Tapping screw
● M1100-13771-------Tapping screw

Note: Special attention should be payed to tightening the screw in order to avoid making oversized or broken hole.

Parts No.	Description	Pcs.	Ref. Page
M1101-15101	Top cover assy.	1	1
M1101-15111	Top cover	1	2
M1101-15191	Insulation cover	1	2
M1101-15211	Winding lever	1	1
M1101-15231	Winding lever cap	1	1
M1101-15271	Buzzer contact (A)	1	2
M1101-15281	Buzzer contact (B)	1	4
M1101-15291	Pulsating buzzer	1	2
M1101-1551T1	SV base plate	1	8
M1101-15541	M.P.C. board	1	8
M1101-1558T1	SV middle disk	1	8
M1101-15631	SV compensation disk lock	1	8
M1101-15691	Exposure compensation dial lock	1	1
M1101-17541	Self-timer lever	1	1
M1101-17561	Screw	1	1
M1101-17591	Selftimer lever cap	1	1
M1101-18111	Shutter mode selector	1	2
M1101-18121	Selector shaft	1	2
M1101-18171	Selector cap	1	2
M1101-18211	Selector plate	1	2
M1101-18301	Selector printed board	1	3
M1101-18491	Lead wire clip	1	4
M1101-21711	Signal pin housing	1	4
M1101-21721	Signal pin	6	4
M1101-21731	Spring	6	4
M1101-21741	Back board	1	4
M1101-2422T1	Shutter speed scale frame	1	4
M1101-28101	Flexible electro circuit board	1	4
M1101-29241	Lead wire (White)	1	8
M1101-29511	Lead wire (Pink)	1	8
M1101-29521	Lead wire (Pink)	1	8
M1101-29541	Lead wire (Purple)	1	8
M1101-29561	Lead wire (Green)	1	8

Parts No.	Description	Pcs.	Ref. Page
M1101-29591	Lead wire (White)	1	3
M1101-29611	Lead wire (Green)	1	3
M1101-29621	Lead wire (Pink)	1	3
M1101-29631	Lead wire (Brown)	1	3
M1101-29641	Lead wire (Pale blue)	1	3
M1100-11021	BC house	1	8
M1100-11131	Neck strap eyelet	2	10
M1100-11142	Reflection absorber sheet	1	10
M1100-11191	Cover	1	1
M1100-11201	Battery cartridge	1	1
M1100-11271	BC inner chamber	1	8
M1100-11281	BC flip lever	1	8
M1100-1131T1	Battery plus contact	1	8
M1100-11351	Heat-shrink tube	1	8
M1100-11411	Strap loop	2	1
M1100-11421	Filling	2	1
M1100-11482	Ring	1	9
M1100-11492	Ring	1	9
M1100-11911	Reset switch	1	7
M1100-11992	Cushion	1	7
M1100-12102	Back cover assy.	1	1
M1100-1213T1	Pressure plate	1	2
M1100-12241	Back cover latch	1	10
M1100-12251	Cover	1	10
M1100-12261	Collar	2	10
M1100-12271	Sealing strip	1	10
M1100-12312	Hinge bracket	1	10
M1100-12321	Hinge shaft upper	1	2
M1100-12331	Hinge shaft lower	1	2
M1100-12351	Screw	1	2
M1100-12361	Spring	1	2
M1100-13021	Film take-up spool	1	10
M1100-13102	Winding base plate assy.	1	9
M1100-1311T2	Base plate	1	9
M1100-1316T1	Pawl	1	9

Parts No.	Description	Pcs.	Ref. Page
M1100-13181	Spring	1	9
M1100-1334T1	Winding shaft assy.	1	9
M1100-13381	Spring	1	9
M1100-13391	Washer	1	9
M1100-13411	Pawl	1	9
M1100-13421	Spring	1	9
M1100-13461	Winding gear	1	9
M1100-13501	Film take-up spool gear	1	10
M1100-13602	Sprocket shaft	1	9
M1100-13612	Sprocket	1	9
M1100-13661	Spring	1	9
M1100-13681	Screw	1	9
M1100-1371T2	Film counter base plate	1	9
● M1100-13771	Screw	2	9
M1100-13802	Film counter base plate assy.	1	9
M1100-13832	Advance cam	1	9
M1100-13891	Lead wire clip	1	9
M1100-13932	Spring	1	9
M1100-13972	Spring	1	9
M1100-14021	Connector	1	7
M1100-14212	Exposure counter	1	9
M1100-14221	Spring	1	9
M1100-14231	Clip spring	1	9
M1100-14242	Spring holder	1	9
M1100-14252	Indicator	1	9
M1100-14403	Safety winding device	1	7
M1100-14431	Spring	1	7
● M1100-14471	Anchor	1	7
M1100-14501	Crank disk	1	9
M1100-14511	Bearing	1	10
M1100-14521	Spring	1	9
M1100-14561	Collar	1	9
M1100-14571	Winder film advance coupling	1	9
M1100-14581	Screw	1	9
M1100-14611	Clutch lever	1	9

Parts No.	Description	Pcs.	Ref. Page
M1100-14631	Shaft	1	9
M1100-14702	Bottom base plate	1	7
M1100-14811	Mirror charging lever	1	7
M1100-14821	Shaft	1	7
M1100-14862	Control slide	1	7
M1100-14911	103 Winding switch	1	7
M1100-15131	Shutter button	1	1
M1100-15141	Window cover	1	2
M1100-15151	Screw	1	1
● M1100-15161	Screw	1	1
M1100-15171	Screw	2	1
● M1100-15181	Screw	1	9
M1100-15221	Nut	1	1
M1100-15312	Hot-Shoe	1	2
M1100-15331	Inner cover	1	2
M1100-15351	Insulation base	1	2
M1100-15381	Retaining	1	2
M1100-15411	X-Contact lever	1	2
M1100-15431	Washer	1	2
M1100-15561	Washer	2	5,8
M1100-15611	Click spring	1	8
● M1100-15641	Screw	1	8
M1100-15661	Spring	1	8
M1100-15711	Rewind knob	1	1
M1100-1572T1	Rewind lever	1	1
M1100-15751	Nut	1	1
M1100-15761	Spring	1	1
M1100-15811	Rewind shaft	1	8
M1100-15821	Hub	1	8
M1100-15841	Spring	1	8
M1100-15851	Spring	1	8
M1100-15911	Compensation value disk	1	8
M1100-15921	Nut	1	8
M1100-15931	Film speed compensation dial	1	1
M1100-15941	Film speed scale	1	1

Parts No.	Description	Pcs.	Ref. Page
M1100-15951	Spring	1	1
M1100-15961	Scale base	1	1
M1100-15971	Nut	1	1
M1100-16111	Bottom cover	1	1
M1100-16141	Rewind button	1	1
M1100-16311	Winder electrical contacts	1	7
M1100-16411	Tripod socket	1	7
M1100-16431	Screw	1	1
M1100-17112	SEIKO Shutter	1	8
M1100-17151	Sealing strip	1	8
M1100-17162	Main switch	1	9
M1100-1721T2	Shutter release lever	1	8
M1100-17241	Collar	2	8
M1100-17262	Shaft	1	5
M1100-17271	Screw	1	5
M1100-17281	Spring	1	8
M1100-17291	Screw	1	8
M1100-17311	Slide	1	5
M1100-17321	Hub	2	5
M1100-17332	Spring	1	5
M1100-17342	Screw	1	5
M1100-17501	Self-timer cam	1	5
M1100-17511	Self-timer	1	5
M1100-17551	Washer	1	1
M1100-17571	Ring	1	1
M1100-17612	Actuating lever	1	5
M1100-17622	Shaft	1	5
M1100-18141	Spring	1	2
M1100-18151	Click	1	2
M1100-18161	Selector button	1	2
M1100-18512	Leatherette	1	1
M1100-18522	Leatherette	1	1
M1100-18532	Leatherette	1	2
M1100-18542	Leatherette	1	2
M1100-21112	Front housing	1	5

6. Check that the wire contacts of the 103 winder switch is in right position after installing the bottom base plate as shown in Fig. 14 and 15.

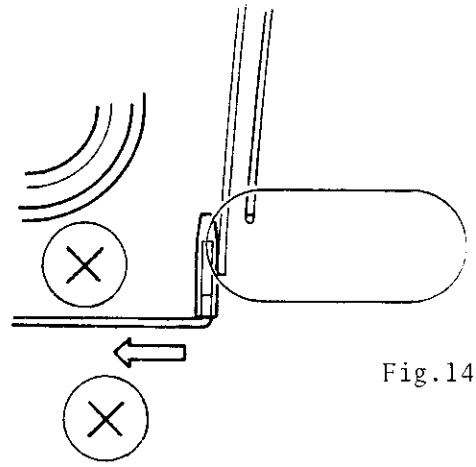


Fig.14

Fig.14 When winding the film advance lever and returning it completely, the switch must be OFF.

Fig.15 While winding the film advance lever and with the shutter released, the switch must be ON.

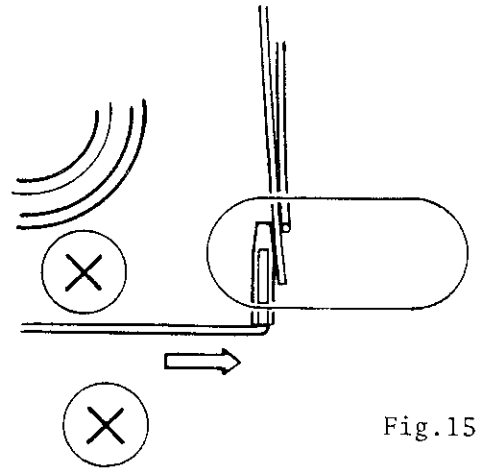


Fig.15

7. Tighten five screws of the bottom base plate sufficiently.

1-3 How to hold shutter unit with your fingers

1. When holding the shutter unit, never hold it as shown in Fig.33 because shutter curtains travel would be harmed. But you can hold its tabs.

2. Pay attention as you do not put your fingerprints on surfaces of the curtains or do not getting dirty.

   If did so, take chamois or soft clean paper wrap it around tweezers and moisten it in benzine and gently wipe curtain surface.

Never hold the shutter as shown bellow.

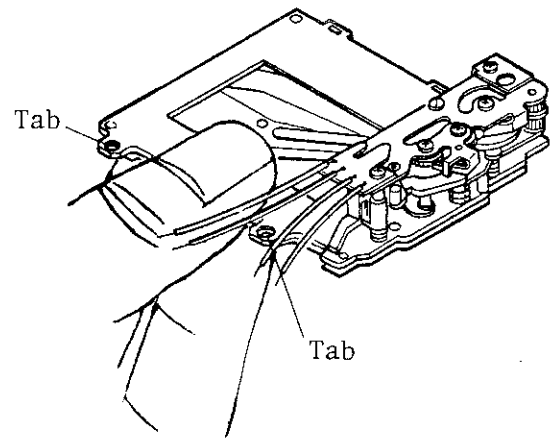


Fig.16

Parts No.	Description	Pcs.	Ref. Page
M1100-21211	Bayonet ring	1	3
M1100-21221	Spring	1	3
M1100-21311	Aperture value ring	1	3
M1100-21321	Spring	1	3
M1100-21331	Cover	1	3
M1100-2141T1	Lens lock lever	1	3
M1100-21441	Spring	1	3
M1100-21451	Screw	1	3
M1100-21501	A print board	1	5
M1100-22101	Apron	1	1
M1100-22142	Splint	1	1
M1100-22161	Screw	2	1
M1100-22191	Safety cover	1	1
M1100-24112	Prism roof	1	4
M1100-24121	Washer	1	4
M1100-24131	Mylar cover	1	4
M1100-24202	Eyepiece frame assy.	1	4
M1100-24211	Penta prism	1	4
M1100-2431T2	Focusing screen frame	1	4
M1100-24331	Adjusting screw	1	4
M1100-24351	Adjusting screw	2	4
M1100-24411	Fresnel lens	1	4
M1100-24421	Fresnel lens frame	1	4
M1100-24431	Release pawl	1	4
M1100-24451	Spring	1	4
M1100-24461	Spring	1	4
M1100-24511	Sealing strip	1	4
M1100-24521	Sealing strip	1	3
M1100-24531	Curtain	1	3
M1100-25002	Mirror housing assy.	1	5
M1100-25121	Reflection absorber leatherette	1	6
M1100-25131	Reflection absorber leatherette	1	6
M1100-25141	Reflection absorber leatherette	1	6
M1100-25161	Damper	1	6
M1100-25171	Reflection absorber leatherette	1	6

Parts No.	Description	Pcs.	Ref. Page
M1100-25201	Mirror holder	1	6
M1100-25211	Mirror	1	6
M1100-25281	Reflection absorber leatherette	1	6
M1100-2531T1	Mirror angle requlator	1	6
M1100-25331	Screw	1	6
M1100-25351	Spring	1	6
M1100-26171	Spring	1	6
M1100-26202	Latch	1	6
M1100-26211	Mirror return rod	1	6
M1100-26282	Spring	1	6
M1100-26302	Latch and release lever unit	1	6
M1100-26381	Spring	1	6
M1100-27181	Spring	1	6
M1100-2721T1	Mirror charge lever unit	1	6
M1100-27241	Collar	1	6
M1100-27261	Spring	1	6
M1100-27301	Mirror raising lever	1	6
M1100-27361	Roller	1	6
M1100-2741T1	Latch	1	6
M1100-27471	Spring	1	6
M1100-27601	NC lever	1	6
M1100-27641	Spring	1	6
M1100-2771T1	Memory switch	1	6
M1100-27811	X synchro. contact base	1	6
M1100-27841	Lead wire clip	1	6
M1100-29111	Lead wire (Orange)	1	8
M1100-29121	Lead wire (Pale blue)	1	8
M1100-29141	Lead wire (Green)	1	7
M1100-29151	Lead wire (Black)	1	7
M1100-29171	Lead wire (Red)	2	7,8
M1100-29181	Lead wire (Orange)	1	7
M1100-29211	Lead wire (Black)	1	8
M1100-29221	Lead wire (Black)	1	4
M1100-29231	Lead wire (Green)	1	8
M1100-29271	Lead wire (Orange)	1	8

Parts No.	Description	Pcs.	Ref. Page
M1100-29281	Lead wire (White)	1	8
M1100-29291	Lead wire (Yellow)	1	8
M1100-29311	Lead wire (Purple)	2	8,9
M1100-29321	Lead wire (Pale blue)	1	9
M1100-29341	Lead wire (Blue)	1	3
M1100-29351	Lead wire (Green)	1	5
M1100-29362	Lead wire (Yellow)	2	5,8
M1100-29371	Lead wire (Purple)	1	6
M1100-29381	Lead wire (Red)	1	6
CSL11391	Sealing strip	1	10
CSL12281	Sealing strip	2	2
CSL13261	Eccentric collar	1	9
CSL13271	Stud screw	1	9
CSL14621	Spring	1	9
CSL18611	Cover	1	1
OTL2939	Washer	1	6
LE103-362K	X synchro. terminal	1	5
PB1.7x1.8	Screw for M1101-15541	2	8
PB1.7x2	Screw for M1100-26302	2	6
PB1.7x2.2	Screw for M1100-27811	1	6
PB1.7x3	Screw for M1100-17112	1	8
PB1.7x3Ni	Screw for M1101-18301	2	3
PB1.7x6	Screw for M1100-11131	2	10
PB2x4Ni	Screw for M1100-21112	4	3
	for M1100-2431T2	2	3
	for M1100-25002	4	5
PB2x5Cr	Screw for M1100-21211	4	3
3PB1.4x1.4Ni	Screw for M1101-28101	1	4
3PB1.7x2.5	Screw for M1100-15821	2	8
3PB1.7x2.8Ni	Screw for M1100-15851	1	8
	for M1100-21501	4	5
3PB1.7x3.5	Screw for M1100-17511	2	5
3PB1.7x4Ni	Screw for M1101-1551T1	1	8
	for M1100-2771T1	1	6
PD1.4x2	Screw for M1100-16311	1	7

Parts No.	Description	Pcs.	Ref. Page
PD1.7x3Ni	Screw for M1100-17112	2	8
PD1.7x3	Screw for M1100-21331	2	3
PD1.7x4Ni	Screw for M1100-15312	4	2
PD2x3	Screw for M1100-14702	3	7
	for M1100-16411	2	7
	for M1100-21112	2	3
3PD1.7x4	Screw for M1100-12251	2	10
● TB1.7x4	Screw for M1101-1551T1	1	8
● TB1.7x4.5	Screw for M1101-21711	2	4
● TB1.7x5	Screw for M1101-1551T1	1	8
● TB1.7x6.5	Screw for M1100-11911	1	7
● TB2x4	Screw for M1100-13802	1	9
● TB2x4.5	Screw for M1100-14511	2	10
	for M1100-2431T2	2	3
● TB2x6	Screw for M1100-14631	1	9
● 3TB1.7x3.5	Screw for M1101-18301	1	3
● 3TB1.7x4	Screw for M1100-16111	2	1
	for M1100-24202	2	4
	for M1101-28101	4	4
● 3TB1.7x5.5	Screw for M1101-28101	1	4
● 3TB2x2.5	Screw for M1100-1131T1	2	8
● 3TB2x4.5	Screw for M1101-18171	1	2
● TD1.7x4	Screw for M1100-14911	1	7
● TD2x3	Screw for M1100-12312	2	10
● TD2x3.5	Screw for M1100-14403	1	7
● TD2x4.5	Screw for M1100-14511	1	10
● 3TD1.7x4.5	Screw for M1100-17241	2	8
2.8W1.4x0.3	Washer	1	4
4W2x0.5	Washer	1	4
5.5W3x0.2	Washer	1	9
N1.4	Nut	1	2
E-10	E-ring	1	9
E-13	E-ring	3	6,7
E-17	E-ring	6	6,9

2. Film counter mechanism and film advance

1) With the back cover closed, the lever (A) is pushed. The film counter plate is pulled by the M1100-13871 spring. Therefore the (8) film counter gear engages with shaft of the (7) film counter advance gear. (Fig. 17 and 18)

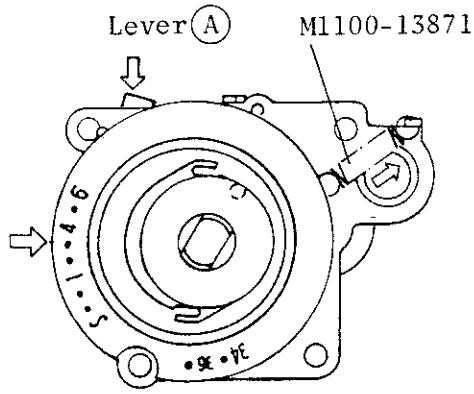


Fig.17

2) When winding the (1) film advance lever, the M1100-1334T1 winding shaft is rotated by the shaft (2) At the same time, the (3) cam gear is rotated by the arm (B). (Fig. 18)

3) The (5) sprocket clutch gear is rotated through the idle gear which is engaged with the cam gear. Then the sprocket shaft and sprocket are rotated and advances the film. (Fig. 18)

4) The (7) film counter advance gear which is engaged with the (6) sprocket shaft gear is rotated by the sprocket shaft gear. (Fig.18)

5) One tooth of the (8) film counter gear is advance by revolution of the notch of the (7) film counter advance gear. (Fig. 18)

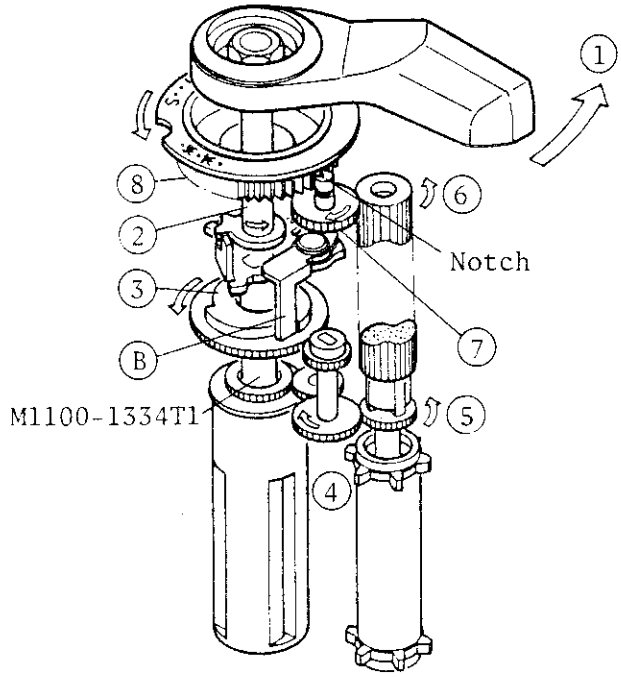


Fig.18

6) When opening the back cover, the lever (A) returns and the film counter gear is detached from the notch shaft. Then the film counter is reset to starting position by the M1100-14221 spring.

2-1 Adjustment of M1100-1316T1 winding pawl and M1100-13411 idle gear pawl.

A. Winding pawl (Fig. 19)

1. When winding the film advance lever, the winding pawl should be detached from the sector gear just before the sector gear hits and stops.
2. Adjustment is made by turning the eccentric collar.

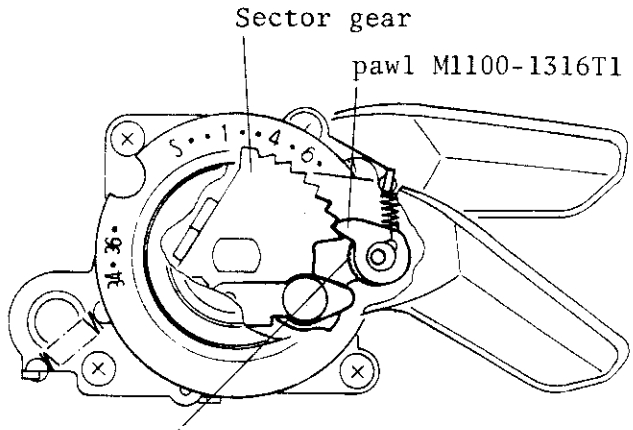


Fig.19

B. Idle gear pawl (Fig. 20)

1. When winding the film advance lever fully and not return it, idle gear pawl should be between teeth. Check it by winding three times.
2. Adjustment is made by turning the eccentric collar.

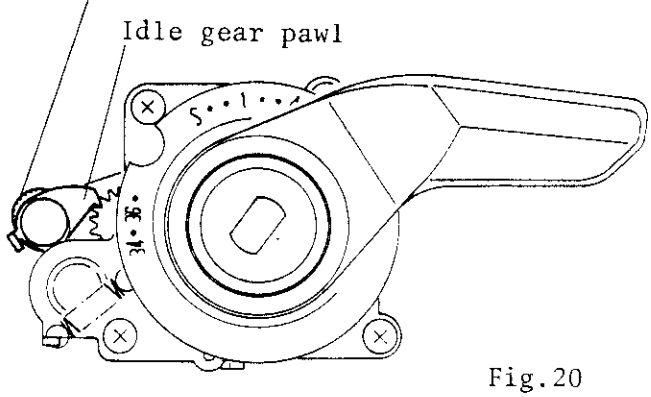


Fig.20

C. Replacement of reset spring of film counter (Fig. 21 and 22)

Insert end (B) of the spring into the hole (A) on the film counter disc.

Rotate other end (C) of the spring one turn with tweezers or some spring hanger and then hang it on hook.

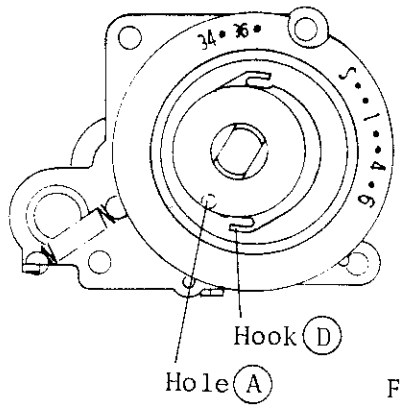


Fig.21

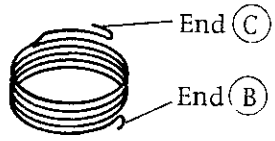


Fig.22

D. Determining M1100-13831 film counter advance gear (Fig. 23)

1. Before installing M1100-13801 film counter base plate unit determine notch of the advance gear as shown in Fig 23.
2. Install the film counter base plate and tighten four screws and set M1100-14251 indicator.

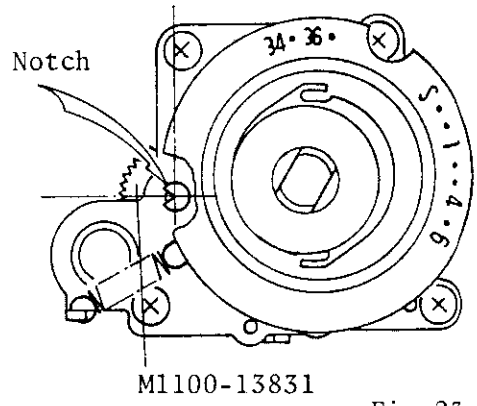


Fig.23

3. Close the back cover of the camera. When winding the film advance lever, the figure on the film counter should correspond with the indication mark.
4. If the indication mark is between the figures, recheck the above step 1.

3. Mirror housing mechanism and shutter charge

3-1 Operation of shutter and mirror (Fig. 24 and 25)

Operation procedure

④ Charge of the mirror housing (Fig. 24)

⑥.⑦ Releasing the mirror, mirror up (Fig. 25)

⑪ Returning the mirror (Fig. 25)

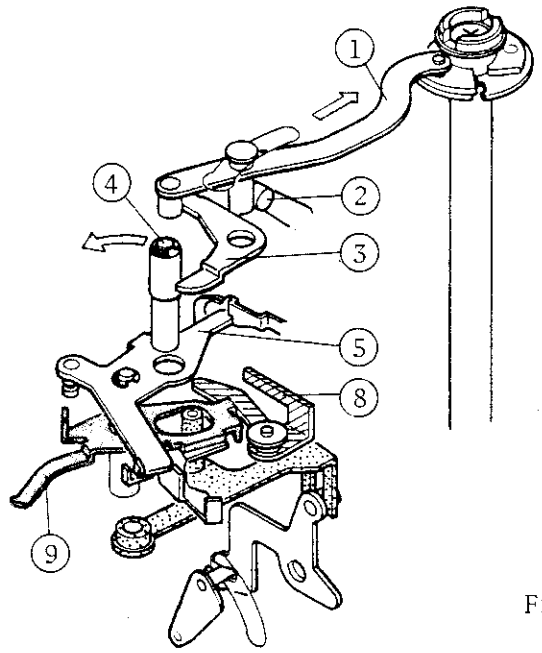


Fig.24

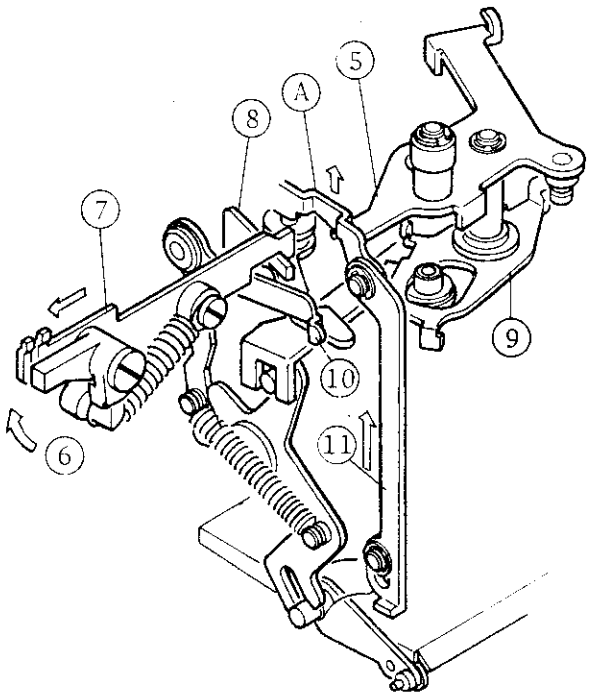


Fig.25

1. When winding the film advance lever, first ② shutter is cocked by the ① connector.
2. Simultaneously the ⑪ mirror return rod and the snap Ⓐ which is linked with the mirror return rod move.
3. Further winding the film advance lever, the ④ mirror charge pin is moved in direction shown by the arrow by the ③ charge lever. (Fig. 24)
4. The end of the ⑤ mirror charge lever unit is locked on the snap Ⓐ and then mirror is charged. (Fig. 24 and 25)
5. When depressing the shutter release button, the ⑥ release lever and the ⑦ slide move in direction shown by the arrow. (Fig. 25)
6. The ⑧ mirror latch is unlatched and then the mirror rises up.
7. Just before the mirror has risen up, the 1st curtain is started by the ⑩ 1st curtain start lever goes down.
8. With the second curtain closed, the mirror returns to the viewing position by the ⑪ mirror return lever moves in direction shown by the arrow. (Fig. 25)

3-2 Film winding safety mechanism (Fig. 26 and 27)

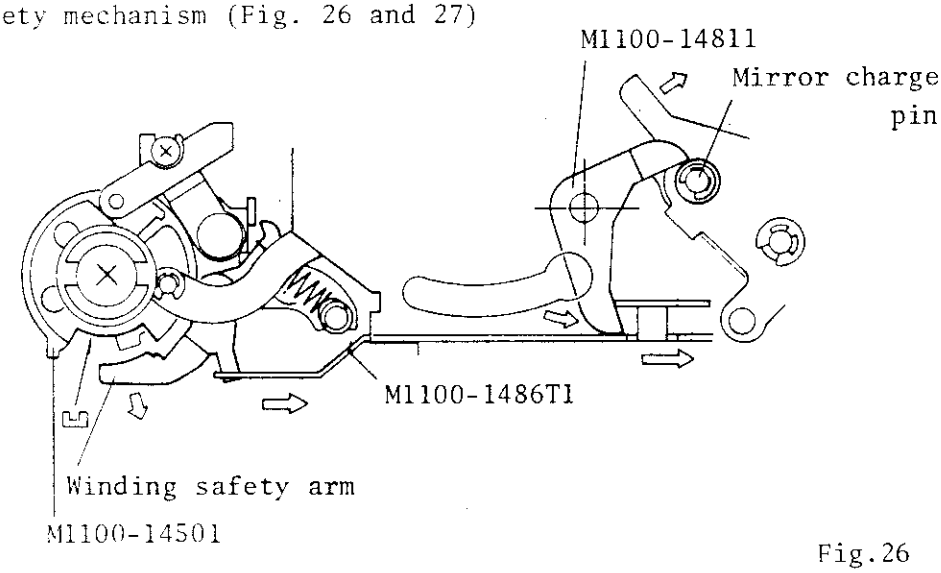


Fig.26

1. With the shutter released, the mirror charge pin moves in direction shown by the arrow and then the M1100-1486T1 winding stop slide

is moved in direction shown by the arrow through the M1100-14811 charge lever which linked with the mirror charge pin.

2. At this time, as the winding safety arm is pulled by the M1100-1486T1 winding stop slide, the winding safety arm jumps out from concave of the M1100-14501 winding crank. Now you can wind the film advance lever.

3. With the film advance lever wound, the M1100-1486T1 winding stop slide is free by the mirror is charged.
The winding safety arm steps in the concave by the M1100-14431 spring. Now you can not wind the film advance lever again unless you press the shutter release button.

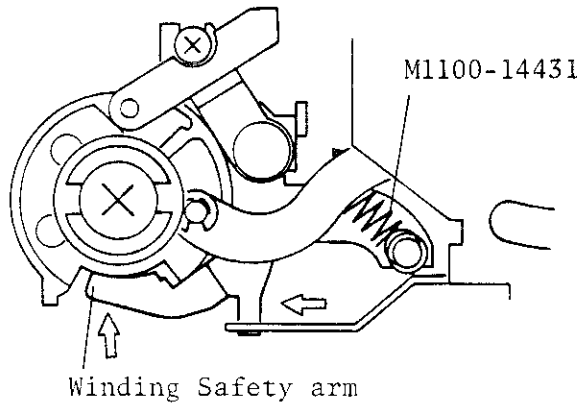


Fig.27

3-3 Mirror rises up suddenly.

A. Phenomenon

When winding the film advance lever after attaching the lens to the camera, the mirror rises up unexpectedly.
That is caused by the lever (A) is not hung on the M1100-2741T1 mirror latch as shown in Fig.28.

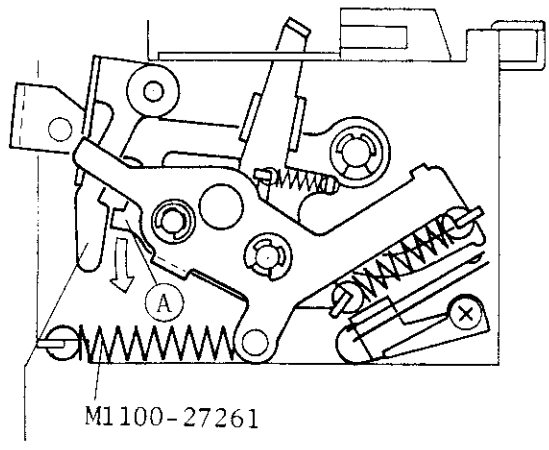


Fig.28

B. Check

1. Check the operation of the diaphragm opening tag of the lens. Smoothness is required for it. (Fig. 29)
2. With the shutter released, there must be a little space between the winding safety arm and body wall. (Fig. 30)
3. Is operation of the M1100-1486T1 winding stop slide smooth?
4. Does the 103 winder switch wire contact push the winding stop slide too strongly? (Refer to 6-2 D)
5. Is adjustment of the memory switch okey? (Refer to 6-2 B)

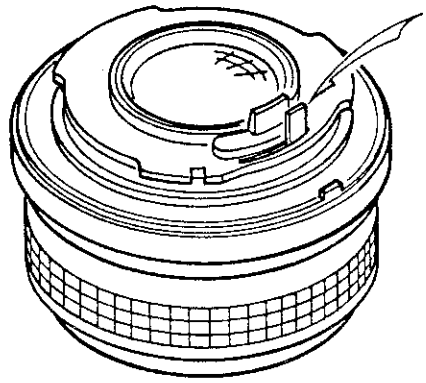


Fig.29

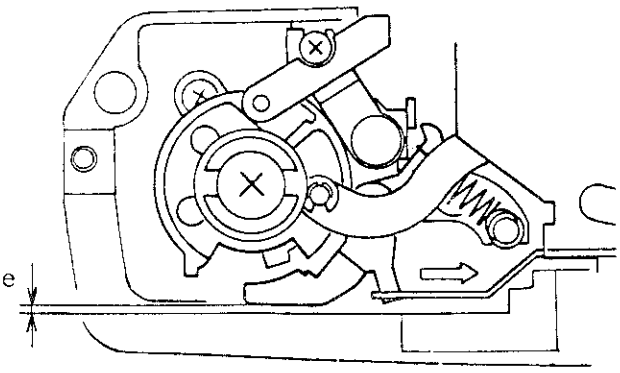


Fig.30

C. Repair

1. Make smooth operation of the diaphragm opening tag and the winding stop slide.
2. Make a little space between the winding safety arm and the body wall by bending the Ⓐ part of the M1100-1486T1 winding stop slide. (Fig. 31)
3. Readjust the 103 winder switch and the memory switch.
4. Replace the M1100-27261 spring with new one. (Fig. 28)

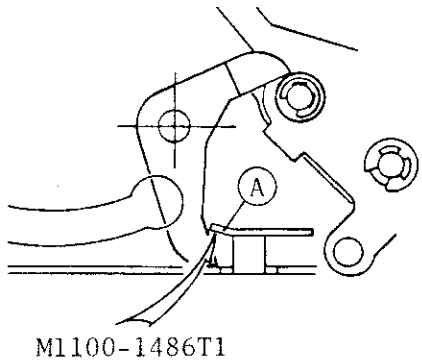


Fig.31

4. Position of aperture arm

4-1 Installation of M1100-21501 A printed board

1. Engage the A printed board gear with the A ring (M1100-21311) as the cross on the gear is located right above when the A ring is located at position of full open aperture (Stop position when returning it counterclockwise). (Fig. 32)

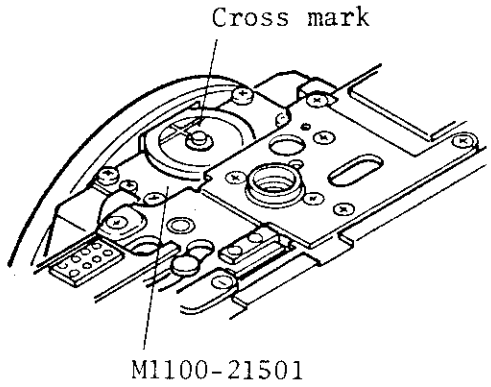


Fig.32

2. Check operation of the A ring. Smooth rotation is required when returning it slowly.

4-2 Check and adjustment of the aperture arm:

A. Check with using EN-2 aperture arm position gauge.

1. Attach the aperture arm position gauge to the camera. (Fig. 33)
2. Set the aperture ring of the gauge to F2.
3. Charge the mirror
4. Release the mirror and keep it at risen position. (On the other hand, set the selector dial to the bulb and you can make bulb by depressing the shutter button.)

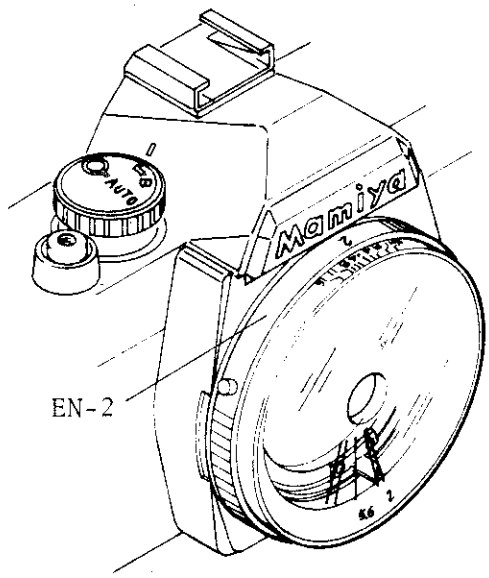


Fig.33

5. At this time top of the arm Ⓐ should be corresponded with the F2 line. (Fig. 34)

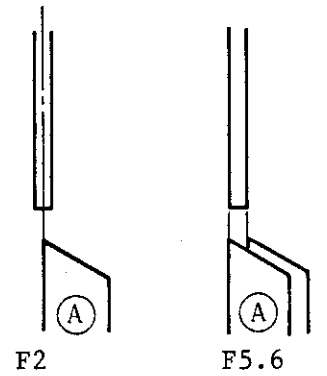


Fig.34

6. Next set the aperture ring to F5.6 and check it as well. (Fig. 34)

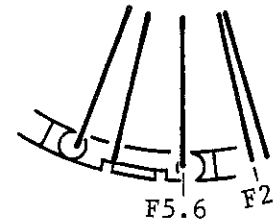


Fig.35

B. Adjustment

1. Adjustment is made by moving the M1100-21501 A printed board after loosening its four screws. (Fig. 36)
2. If further adjusting is required, recheck and readjust position of the cross mark.

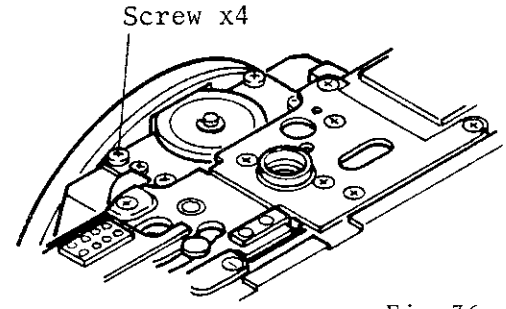


Fig.36

C. Check without using the EN-2 aperture arm position gauge.

1. Set the selector dial to bulb.
2. Attach a lens (F1.7 or F2) to the camera and set the aperture ring to open aperture.

3. Wind the film advance lever for charging shutter and mirror.

4. With the shutter button depressed, check the diaphragm blades do not appear.

5. Turn the aperture ring a half step from the open aperture.

6. With the shutter button depressed, the diaphragm blades should appear slightly.

7. Adjustment is same as the above step B.

4-3 Replacement of M1100-21311 aperture value ring

When being required to replace the aperture value ring, (M1100-21211 bayonet ring and M1100-21331 cup ring.
Please refer to following steps before disassembly.

1. Check that the aperture value ring is returned in stopped position counterclokwise by its spring.

2. Draw two lines on the A printed board gear and M1100-14701 bottom base plate with a pencil as shown in Fig. 37.

3. Remove four screws of the bayonet ring and after replacing some ring or repairing, engage the aperture value ring with the A printed gear.

4. When the aperture value ring is in the above step 1, adjust engagement of the both gears as the drawn two lines align with.

5. Check the aperture arm A position at F2 and F5-6 with EN-2 gauge. If adjustment is necessary, do it by referring to 4-2 A and B. (Fig. 34)

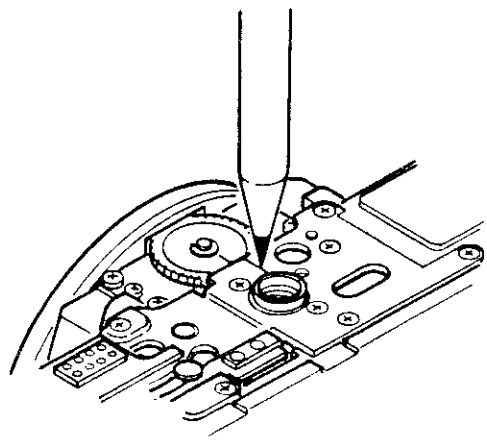


Fig.37

6. If neglecting to draw two lines, you must adjust them with using the EN-2 gauge.

4-4 AE adjustment

1. Set the ASA film speed dial to 100.
2. Turn the selector to AE position.
3. Put the EN-3 working top cover on the camera.
4. Attach a lens to the camera and set the aperture ring to F5.6.

   Note: Please arrange one 50 mm F1.7 lens for AE adjusting.

5. Check LV12 LV15 and LV9 with the EE tester.
6. Adjustment

   adjustment is made by turning VR2 variable resistor with the EN-4 adjusting driver.

   a. First, adjust it as the LED lights up on 1/125 or 1/250 at LV12.

   b. Next, adjust it as the LED lights up or blinks on and off on 1/1000 at LV15.

   C. Adjust it as the LED lights up on 1/30 or LT at LV9.

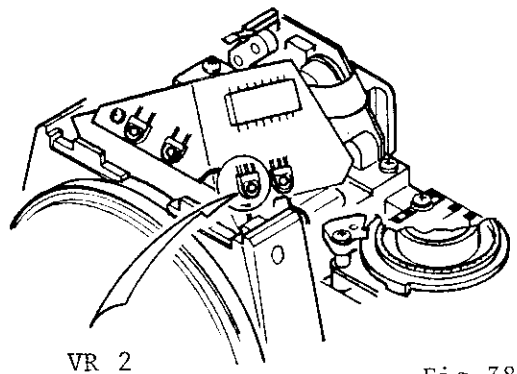


Fig.38

Note: 1) You must turn the VR2 variable resistor gently and slowly.

2) You can replace the VR2 resistor unit when damaging it.

		T.(LED)	f	ASA	Adjust
1	LV12	$\frac{1}{125}$ or $\frac{1}{250}$	5.6	100	VR2
2	LV15	$\frac{1}{1000}$ Blinking is also good.			
3	LV9	LT or $\frac{1}{30}$			

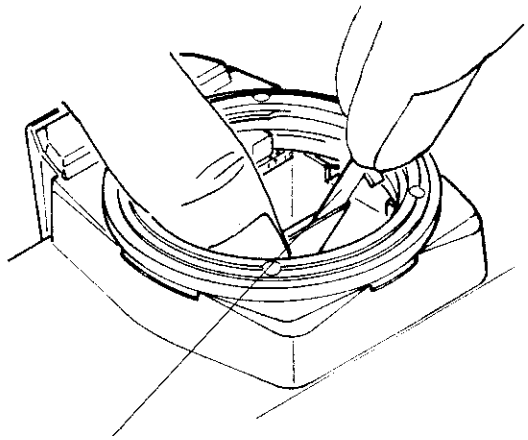
5. Adjustment of viewfinder infinity

5-1 Replacement of mirror and mirror angle 45 degree

A. Replacement of mirror (Fig. 39 and 40)

1. Insert a razor blade or something like it between mirror and mirror holder carefully.

   Note: Do not warp the mirror holder.



Razor blade or a thin plate

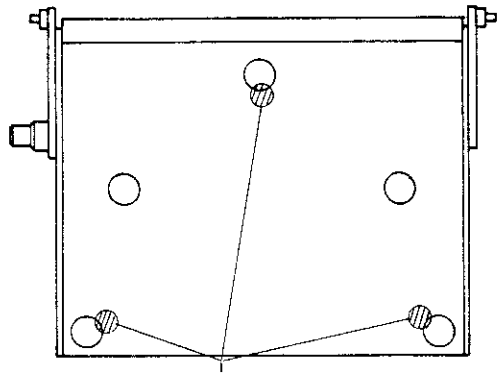
Fig.39

2. After removing the mirror, scrape off the Three bond on surface of the holder roughly. Then remove them by tweezers.

   Note: 1) Do not apply any solvents when removing the Three bond because there are no any solvents for it.

   2) Do not use a hand-blower and an air compressor to blow up scraped off Three bond because scattered Three bond pieces would plague you.

   3) Do not scratch on surface of the mirror, the fresnel lens and the inner wall.



Applay hear

Fig.40

3. Apply a grain of rice quantity of some glue (like a Patex) to three pointed places on the holder and put the mirror. (Fig.40)

B. Adjustment of mirror angle 45° degree

1. Adjustment is made by turning the adjusting screw. (Fig. 52)
2. You must check and adjust the viewfinder infinity after adjusting the mirror angle.

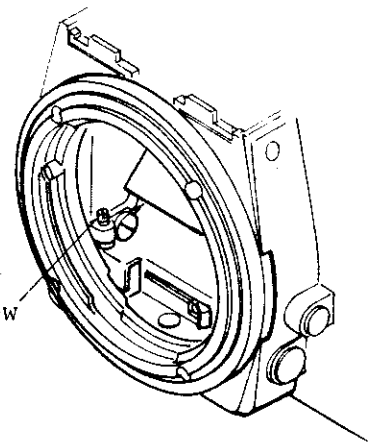


Fig.41

5-2 Adjustment of viewfinder infinity

1. Adjustment is made by only turning the adjusting screw A with NO.2 minus screw driver. (Fig. 41)

   Note: You need not turn the other two screws when adjusting.

2. Fine adjustment can be done by turning the mirror angle adjusting screw.

   Note: Will recommend the above step 2 mode for repairing work in case of after-sales service because of being easier.

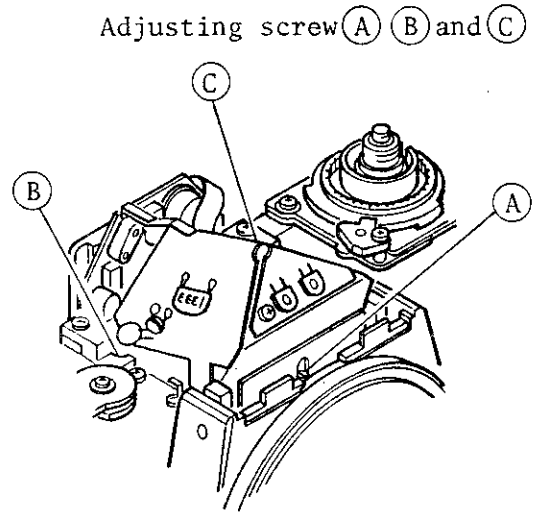


Fig.42

3. When replacing M1100-2431T1 penta prism frame:

   a Tighten the adjusting screws Ⓐ, Ⓑ and Ⓒ until they stop.

   b Return two and half rotations the screws Ⓑ and Ⓒ and four rotations the screw Ⓐ.

   c Adjustment of viewfinder is made by turning only the screw Ⓐ.

Note: When adjusting, do not screw in the Ⓐ screw over one and half turns. Because when installing the M1100-24421 fresnel lens frame, its click device may be unable to work exactly. Avoiding the above case, you can screw in the Ⓑ and Ⓒ screws a little bit more.

5-3 How to clean up inside of the finder

The ZE camera has a fresnel lens release latch to make cleaning of inside of the finder easily.

A. Remove the fresnel lens:

1. Lift up the latch with NO. 2 or NO. 3 minus screw driver. (Fig. 43)
2. When not the fresnel lens frame coming down, hook and pull the frame down with some tool such as a hook-shaped rod.
3. You can remove the fresnel lens from its frame with the EN-5 fresnel lens clip.

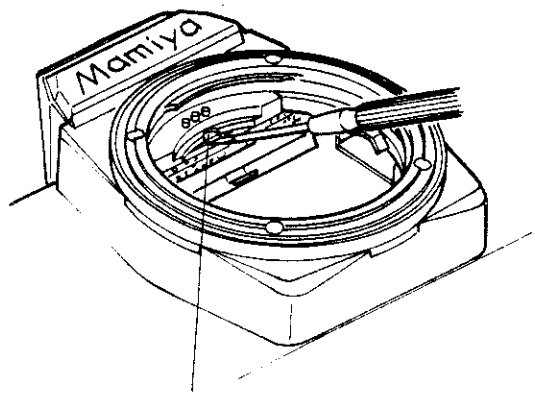


Fig.43

B. When wiping clean surface of the penta prism:

1. Do not touch the shutter speed scale. If the wipe up it with ether, the shutter speed scale will be faded.

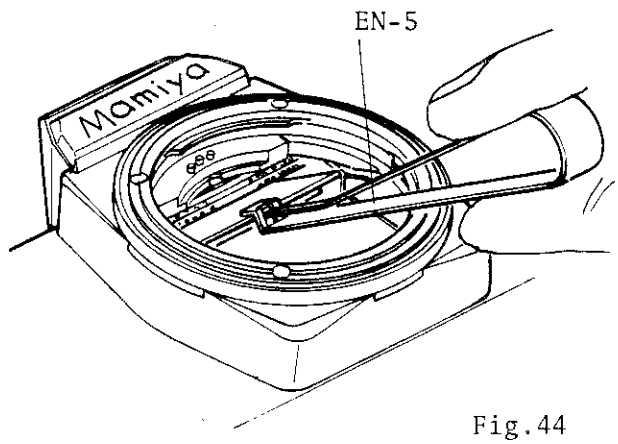


Fig.44

C. When installing the fresnel lens on the frame:

1. Do not install it upside-down.
2. Put two more rounded off corners of the fresnel lens toward in back room.

Fig.45

3. Lift up the frame with your indexfinger until it clicks.

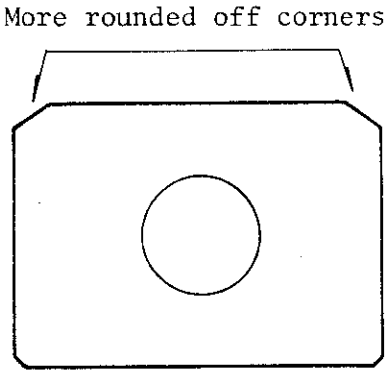


Fig.46

D. How to discriminate right setting of the fresnel lens:
When looking into viewfinder, line of the central split-image must appear as shown in Fig. 47
If it appears as shown in Fig. 48 the fresnel lens is in upside down.

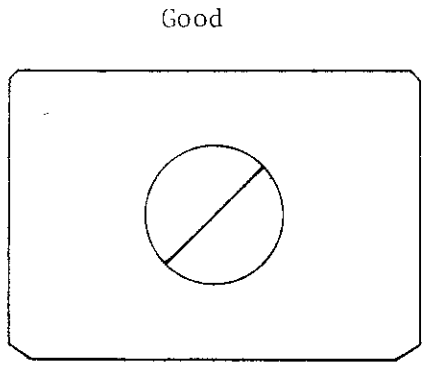


Fig.47

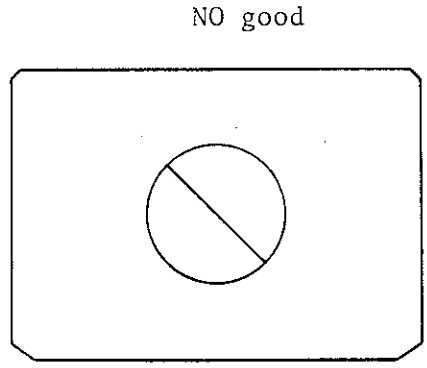


Fig.48

6. Electronic Circuit and Switching

6-1 Outline of electronic cirwits

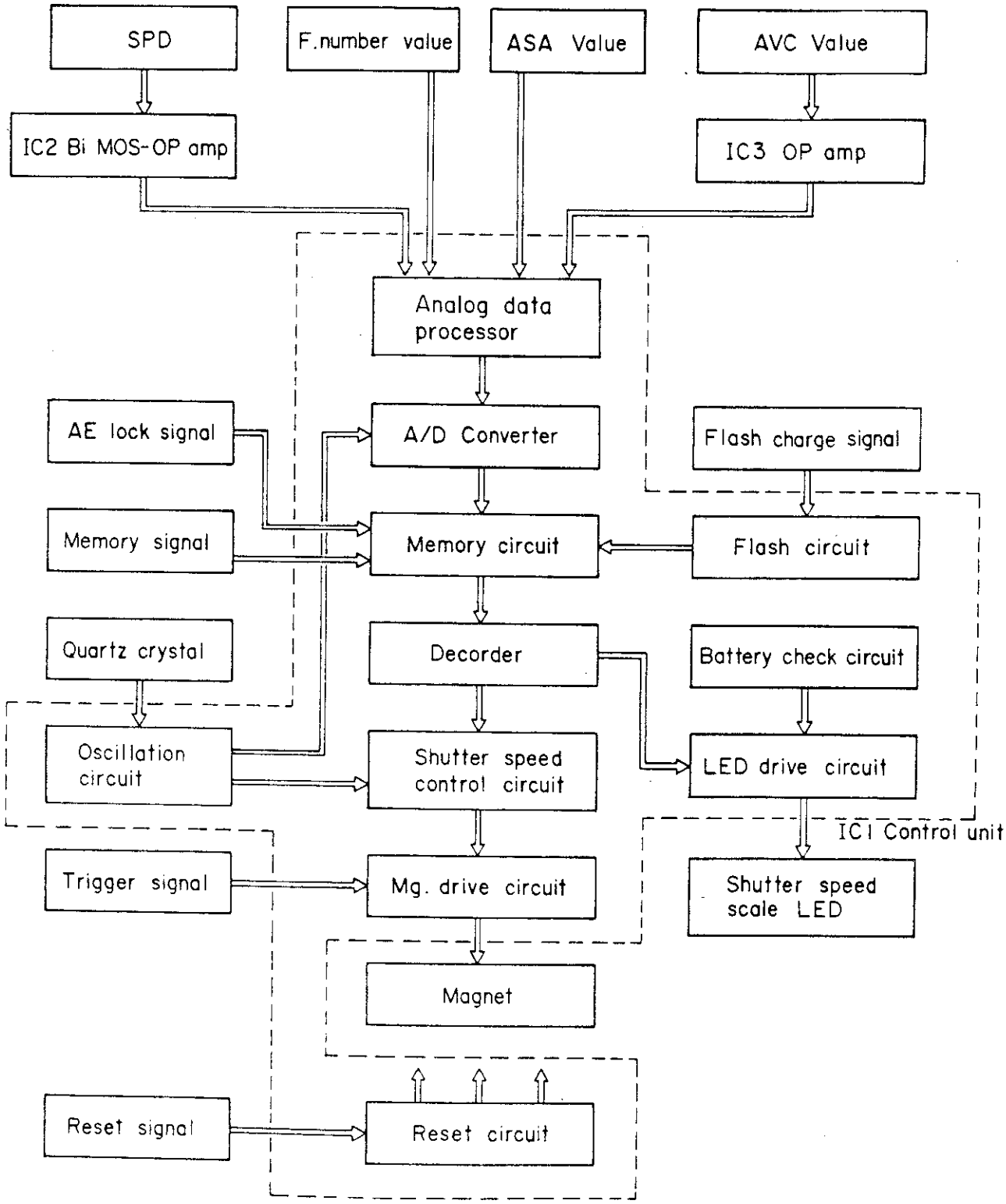
1. As the shutter release button is lightly depessed, the main (power) switch turns on ZE's circuit.
   The circuit reads the set f/number, the ASA value, the AVC (lens maximum f/number compensation) value and the subject brightness converted into an electronic signal by the SPD (Silicon Photo Diode) and the IC-2, Bi-MOS operational amplifier.
   Then, the IC-1 processes those informations in analog form.

2. The A to D (Analog to Digital) converter which works on the pulse signal generated by the Quartz Oscillator converts the processed analog value into a digital value.
   This digital signal which is the proper exposure value is sent to LED indicator in the finder and shows the proper exposure time by the lighting up an LED dot.

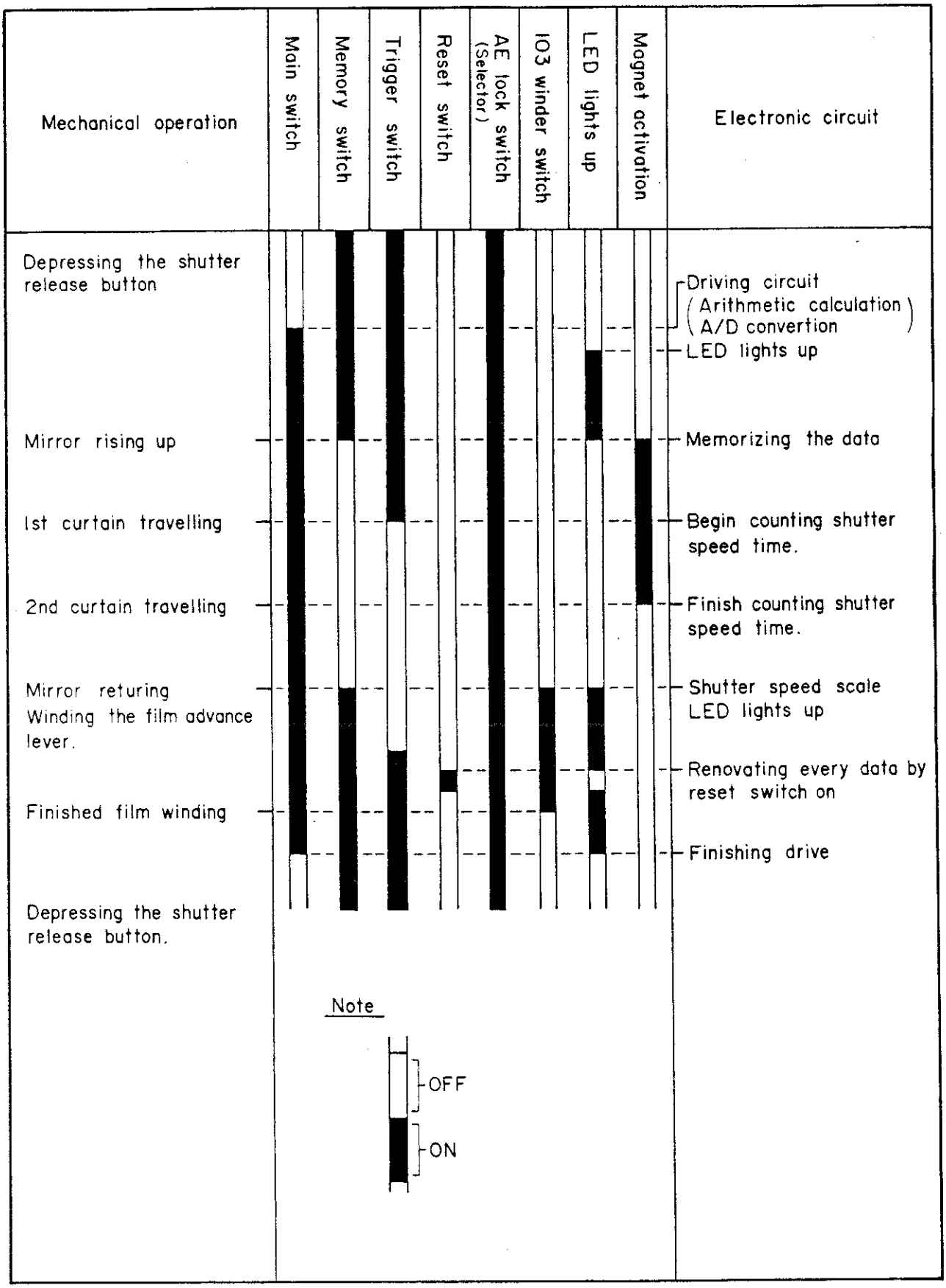
3. As the shutter release button is depressed further, the memory switch is turned off right before the mirror starts to operate and the digitalized proper exposure value is stored in the memory device of the circuit. Then, the electro-magnet of the shutter is turned on and the mirror begins to operate.
   When the mirror approaches the end of its movement, the first blind of the shutter begins to run and simultaneously the trigger switch of the shutter exposure time control circuit is turned off. By this switching the shutter exposure time control circuit which works on the pulse signal supplind by the Quartz Oscillator begins to count the exposure time in propotion to the given signal value from the memory circuit through the decoder.
   When the shutter exposure time counter completes its counting of the expousre time, the electro-magnet which has held the second shutter blind is now turned off to release the second shutter blind.
   Thus the proper exosure time is obtained.
   As soon as the second shutter blind closes the film aperture, the mirror returns and the memory switch turns on for the next exposure sequence.

4. When the camera is operated in the continuous shooting mode with the ZE Winder, the trigger switch is turned on for the next exposure sequence just before the completion of the film advancement and the camera mechanism resetting, Simultaneously the circuit reset switch is also turned on for the next exposure, to renew all the exposure informations that will be processed by the IC-1, camera control unit circuitry.

Electronic circuit mode



Switching Configuration



6-2 Check and adjustment of each switch

A. Main switch (M1100-17161)

OFF—ON Power supply to circuit

1. Check

a. Depress the shutter release button slowly. With the button gone down 0.5 mm to 0.8 mm, the main switch must be turned on.

b. When detaching your finger from the button, the main switch must be turned off.

2. Adjustment

a. Insert a NO. 4 or NO. 5 minus screw driver into under space of the switch as shown in Fig. 51 and remove the switch by levering up it carefully.

b. Adjustment is made by bending the switch wire contacts.

c. With depressing the release lever, attaching the main switch. But, first install its right side and push its left side by head of the tweezers. (Fig. 52)

d. Recheck position of the switch contacts and OFF — ON timing.

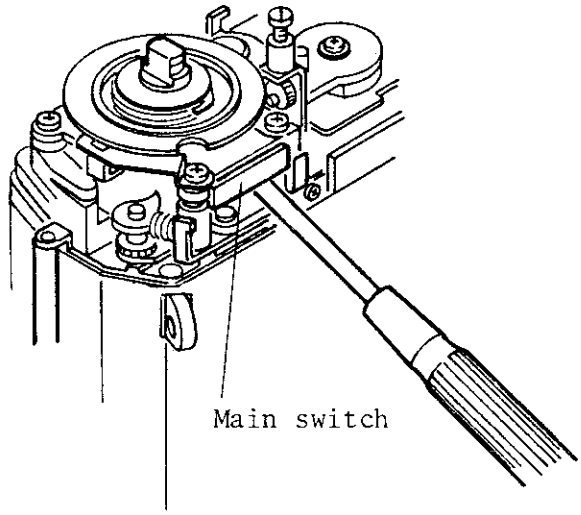


Fig.51

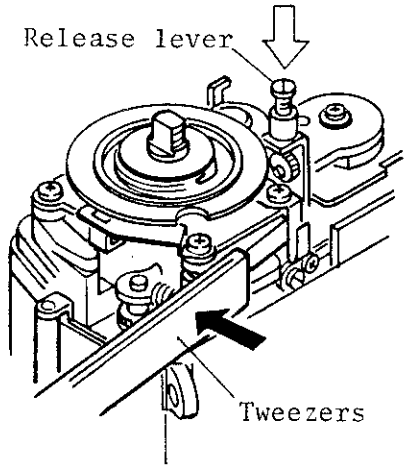


Fig.52

B. Memory switch (M1100-2771T1)

ON ⟶ OFF ⟶ ON Memorizing the data,
Lights off the LED,
Pass the current to the magnet circuit.

1. Check (Fig. 53 and 54)

a. While moving M1100-2741T1 mirror latch lever with tweezers in direction shown by the arrow, push the mirror charge pin with your index finger in direction shown by the arrow.

b. The memory switch contacts are detached and the switch turns off.

c. When returning the mirror charge pin with your index finger slowly, end of switch closing lever depresses the switch contacts then the switch turns on.

d. With the both contacts touched slightly, the lever Ⓐ of the mirror charge lever unit should be 0.3 mm ± 0.1 distant from latching point as shown in Fig.54.
In other word, the switch closing lever should depress the contact about 0.3 mm at least before the mirror charge lever drops to the latch.

e. With the mirror charged completely, check contact efficiency.
Poor contact is never allowed.

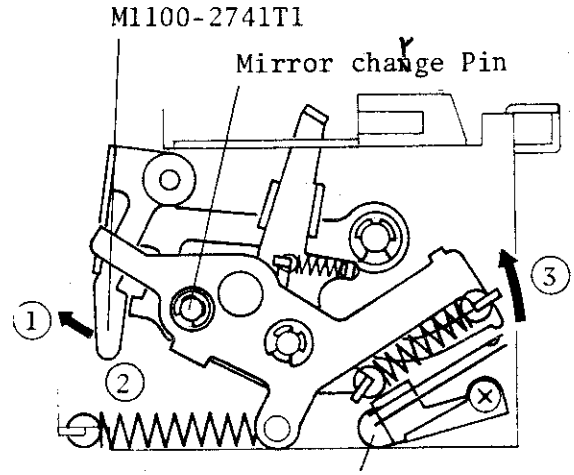


Fig.53

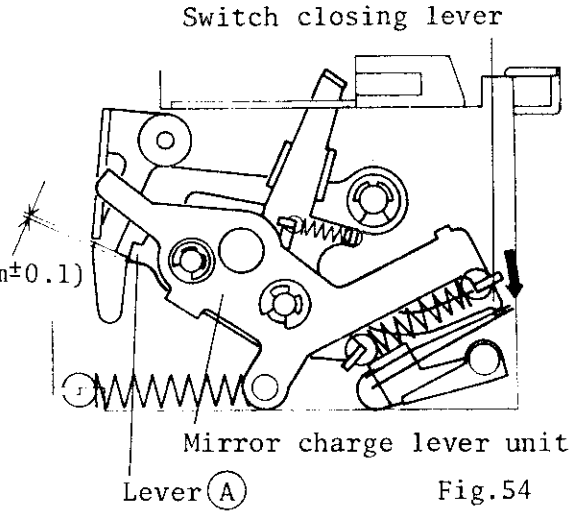


Fig.54

2. Adjustment

Adjustment is made by bending the switch contacts.

Note: As function of the memory switch is very important, always pay your great attention to it.

C. Reset switch (M1100-11911)

OFF ⟶ ON ⟶ OFF Clearance of every data

1. Check (Fig. 55)

a. When winding the film winding lever slowly, the crank Ⓐ pushes up the switch contact Ⓑ.
When the crank Ⓐ reached to arround middle of shaded portion, the contact Ⓑ should touch with the contact Ⓒ.

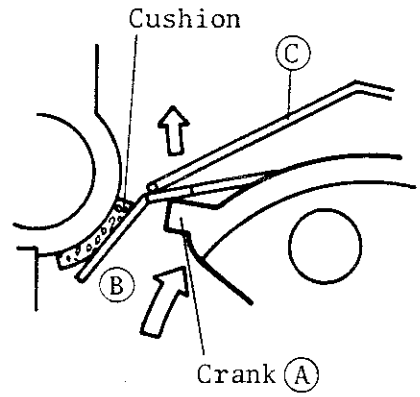


Fig.55

b. Further winding, the crank Ⓐ should push up the contact Ⓑ and Ⓒ about 0.25 mm before the switch turns off.

C. When the crank Ⓐ does not touch to the contact Ⓑ, wider space of the both contacts is better provided the above step 1 and 2 are all right.

2. Adjustment.

Adjustment is made by bending the contacts.

D. 103 Winder switch (M1100-14911)

The 103 winder switch is required when taking the continuous sequence photography with the Mamiya winder. Its function is for start and stop of film winding.

1. Check

a. When winding the film advance lever returning it completely, the long contact must touch to the tube of the M1100-1486T1 winding stop lever, but the switch must be off. (Fig.56)

b. With the shutter released, the long contact is touched to the short one by being pushed with the winding stop lever. Now the switch must be on. (Fig. 57)

c. While winding and returning the film advance lever, the switch contacts must be touched. (Fig. 57)

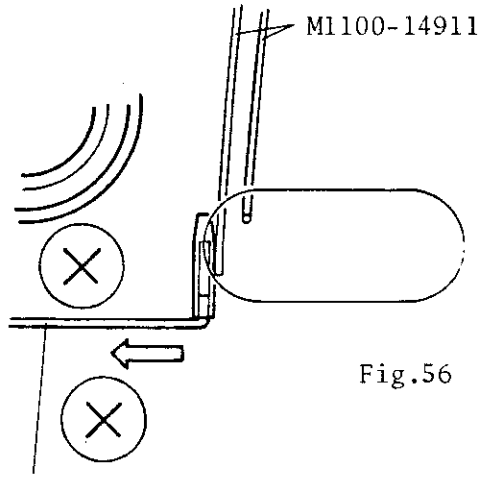


Fig.56

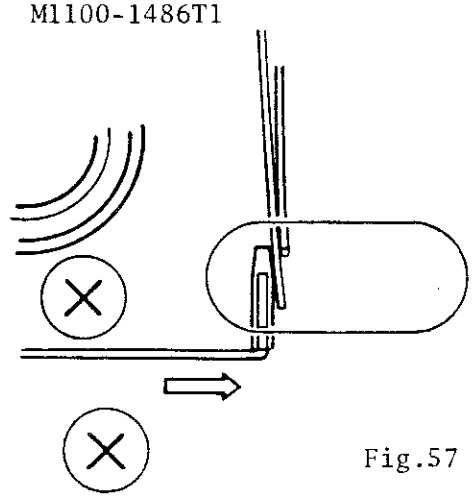


Fig.57

7. Check by tester and trouble shooting

7-1 Advice for electronic circuits and parts:

1. When checking electronic circuits and parts of the flexible printed board by using the electrical tester.
   We recommend you to check them with the tester range DCV but not the tester range OHMS.
2. When checking some of them with the OHMS range, you have to choose the range X100 or X1000, but never X10,000.
   You must remove the battery cartridge from the camera body.
3. Do not apply even if three voltage or less and more directly to the IC and LED circuits when checking.
4. Do not touch the VR1, VR2, VR3 and VR4 variable resistors with your bare fingers..
5. Pay your attention when handling with the flexible printed board because some parts on it are liable to hurt.
6. Please read "Preface P-1" for soldering carefully again.

7-2 Check by tester

A. Standard check

Tester range: DCV

		Battery	Main SW	Tester terminal		Tester indication
				Red (+)	Black (-)	
(1)	Input voltage to the flexible circuit board 6V	O	OFF	Soldering land of orange leadwire from the battery	Body earth	Must be approx. 6V
(2)	Voltage in the circuit 5.8V	O	ON	R7 resistance	Body earth	Must be approx. 5.8V
(3)	Reference voltage to the SV. P. board 1.8V	O	ON	Soldering land of green leadwire on the SV. printed board	Body earth	Must be approx. 1.8V

(1)

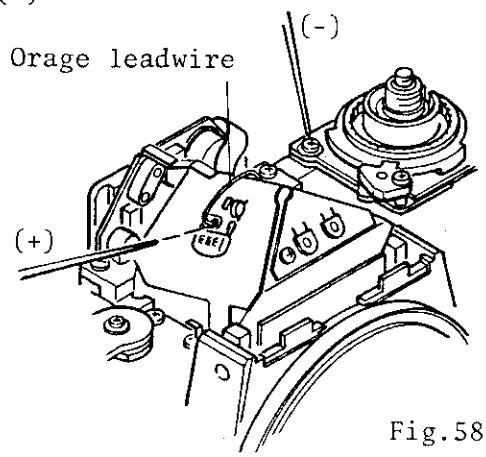


Fig.58

(2)

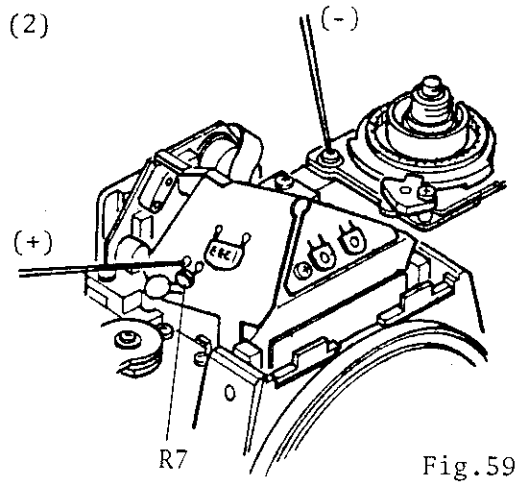


Fig.59

(3)

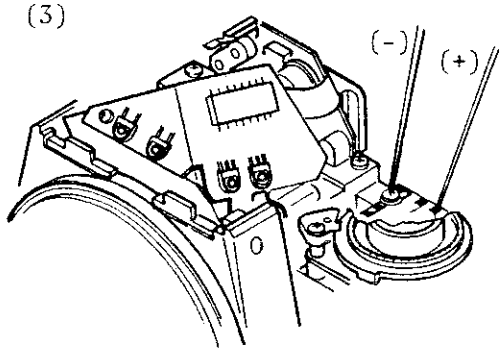


Fig.60

B. Check each switch

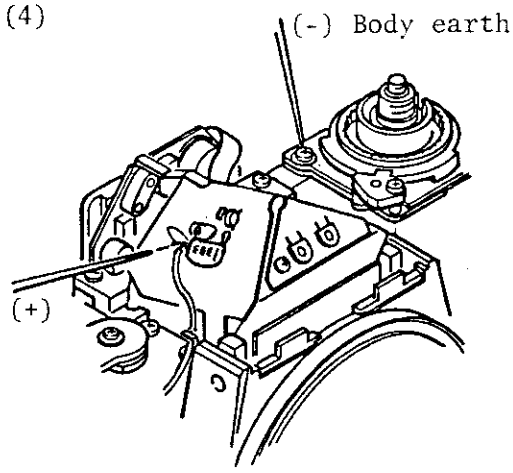
See next page for tester terminal connecting points

	SW	Main SW	Tester range	Tester terminal		Tester indication	Checking point	
				Red (+)	Black (-)			
(4)	Main SW	ON	DCV	purple-land from main SW	Body earth	Zero Volt	1. Poor contact of SW. and selector brush 2. Malsoldering 3. Broken leadwires	
(5)	Memory SW	ON	DCV	Purple-land from memory SW.	Body earth	Zero Volt	1. Poor contact of SW.and non earth 2. Malsoldering 3. Broken leadwires	
(6)	Reset SW	ON	DCV	Blue-land from reset SW.	Body earth	Approx. 0.7V	1. Married contacts 2. Leadwire-body earth	
(7)	Trigger SW	ON	DCV	Yellow-land from shutter	Body earth	1) After winding -0V. 2) After releasing approx. 0.6V	1) Poor contact 2) Broken leadwire 3) Malsolder	
(8)	103 Winder SW	OFF	OHMS X100	See next page		1) When returning winding lever completely-switch OFF 2) After releasing shutter -switch ON	1) Adjustment of SW. contact 2) Malsolder 3) Broken leadwire	

Note: As steps (1) to (8) for the A standard check and the B check each switch are very important, you should check them in advance before beginning repair and adjustment.

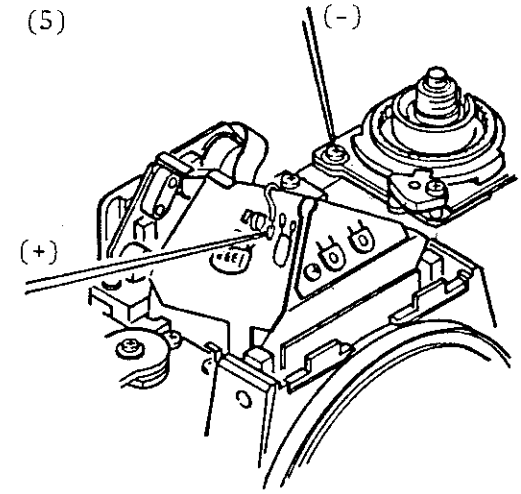
(+) Purple (Main SW)

(4)



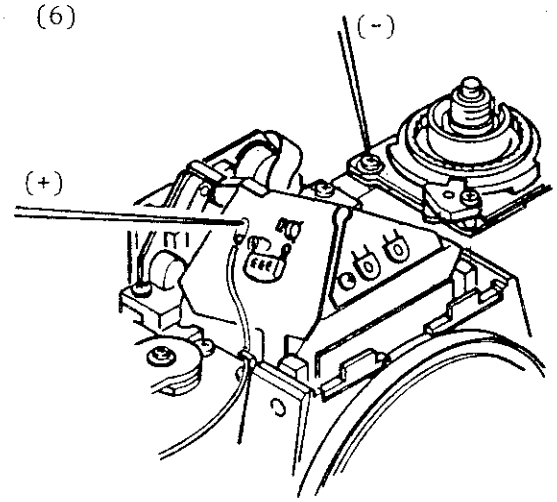
(+) Purple (Memory SW)

(5)



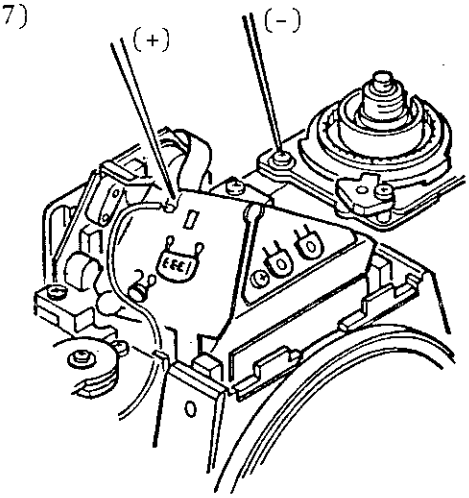
(-) Blue (Reset SW)

(6)



(+) Yellow (Shutter)

(7)



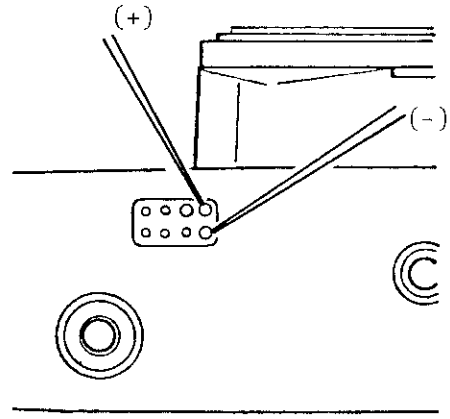


Fig. 61

C. Check main circuits of the flexible printed board

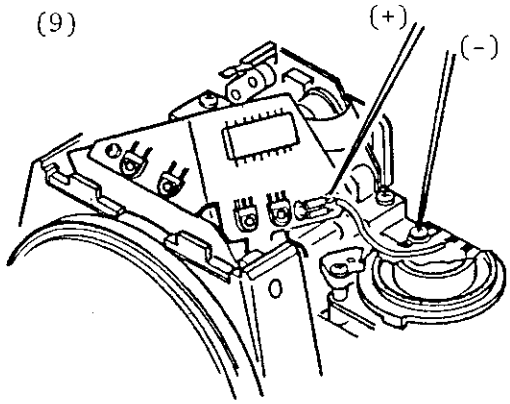
Tester range = DCV

	Main SW	Tester terminal		Tester indication	Check point
		Red (+)	Black(-)		
(9)	ON	White-land from SV. p. board Note: ASA 100	Body earth	Approx. 1.1V	1. Malsoldering for A, SV and AVC p.board 2. Broken leadwires 3. Poor contact of brushes 4. Body earth of white and yellow leadwires 5. Loose earth screws of each p.boards
(10)	ON	Yellow-land from A.p. board Note: ASA 100, without lens	Body earth	Approx. 0.1V	
(11)	OFF	TR2-terminal	Body earth	Approx. 6V	1. Broken and malsoldering R10 (430Ω) 2. TR2-wrong → replacement of flexible p.board
(12)	ON	VR2-middle terminal	Body earth	0.8V - 1.1V	1. VR2 terminals- marriage 2. VR2 brush-poor contact VR2 → replacement
(13)	ON	IC3-green terminal	C2-terminal	0.5-0.6V	Flexible p.board → replacement
(14)	ON	R1 - land or IC1-17 pin Note: With F1.7 lens, EE tester	Green -land	Approx. LV15 - 173 mv LV12 - 227 mv LV9 - 281 mv	1. SPD-wrong position, dirty 2. SPD, TR1, IC2 and IC1-wrong replacement of flexible p.board

See next page for tester terminal connecting points.

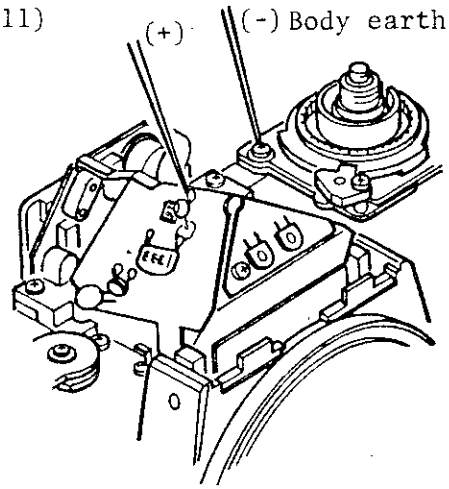
(+) White (SV.P. board)

(9)



(+) TR2 terminal

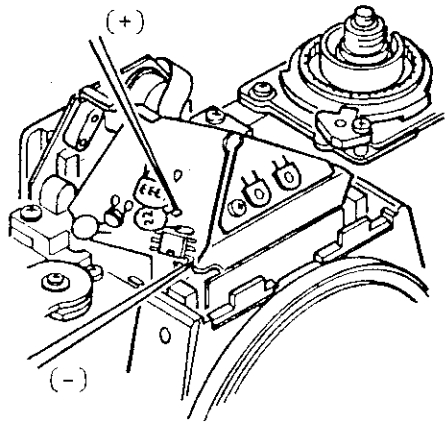
(11)



(+) IC3 (Green)

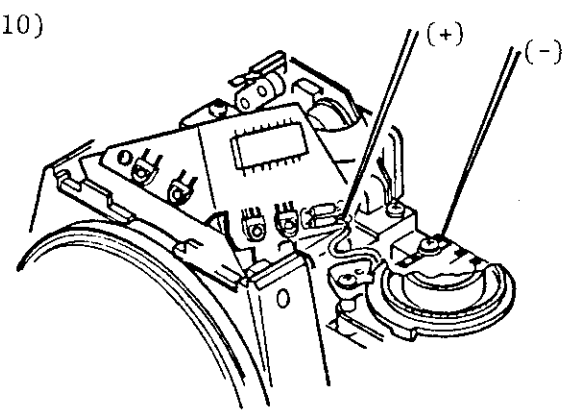
(-) C2 terminal

(13)



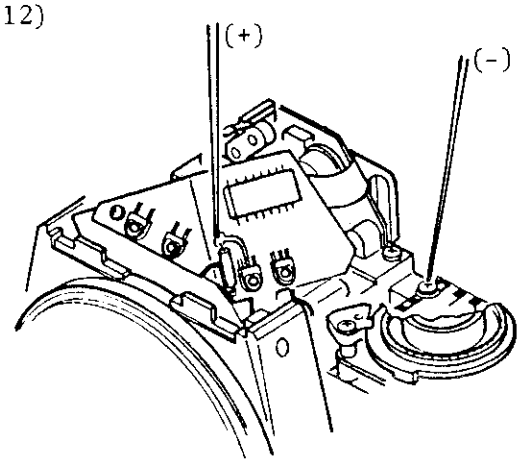
(+) Yellow (A. P. board)

(10)



(+) VR2 middle terminal

(12)



(+) R1-terminal

(14)

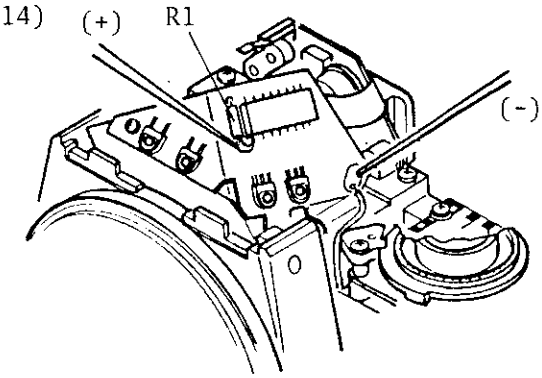


Fig.62

D. Check of IC1 Control unit circuit

Tester range = DCV

	Main SW.	Tester terminal		Tester indication	Checking point
		Red (+)	Black (-)		
(15)	ON	Purple-land from Memory SW, but unsolder the above leadwire.	Body earth	Approx. 0.6V by Digital multitester Approx. 0.2V by Normal tester	1. Purple leadwire-Body earth 2. IC1-Wrong→Replacement of Flexible P.board
(16)	ON	Yellow-land from shutter trigger, but unsalder the above leadwire	Body earth	Approx. 0.6V by Digital multitester Approx. 0.2V by Normal tester	1. Trigger SW.-Marriage 2. Yellow leadwire-Body earth 3. IC1-Wrong→Replacement of Flexible P.board

Tester range = OHMS

(17-1)	OFF	Body earth	X-Synchro. contact	0Ω	1. Malsolder 2. Insulation-Wrong

Tester range = DCV

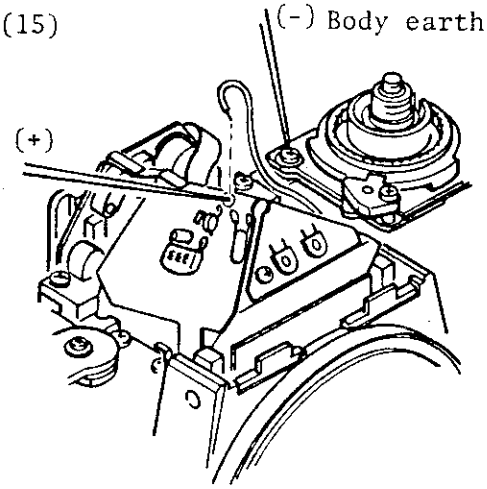
(17-2)	ON	Brown-land from charge signal contact, but unsolder the above lead wire	Body earth	Approx. 2V	IC1-Wrong→Replacement of Flexible P.board
(18)	ON	C1-long terminal Note : ASA100 LV12 and F5.6	Body earth	Approx. 1.6V	1. Malsolder of green leadwires 2. Broken leadwires 3. VR2-Wrong

See next page for tester terminal connecting points.

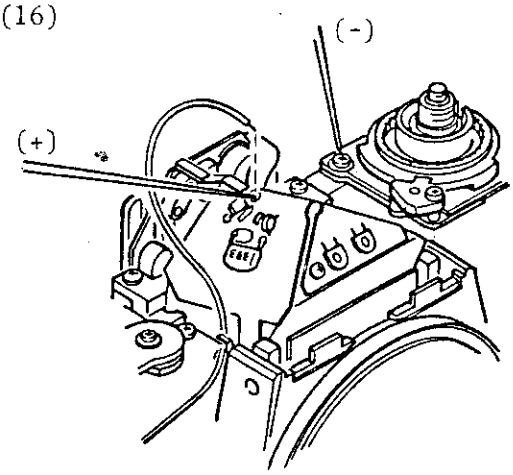
(+) Purple-land (Memory SW)

(+) Yellow-land (Shutter)

(15)

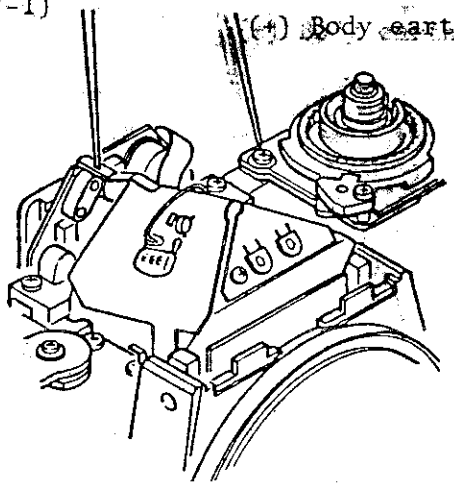


(16)



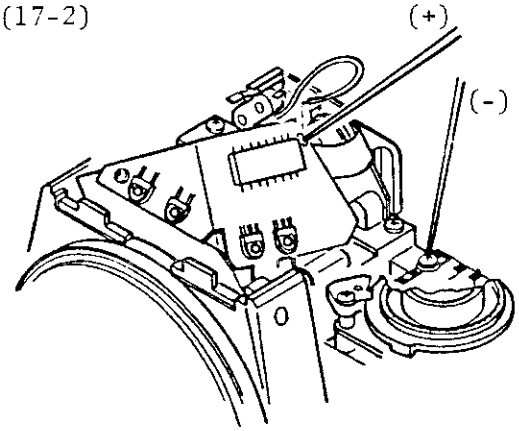
(-) X-Synchro. contact

(17-1)



(+) Brown-land (Charge signal contact)

(17-2)



(+) C1. Capacitor terminal

(18)

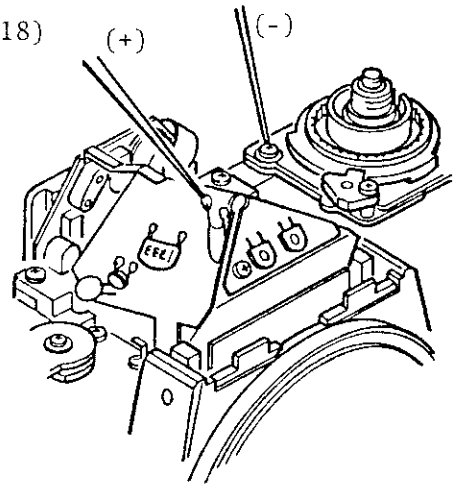


Fig.63

E. Check shutter circuit and open aperture coupling pins

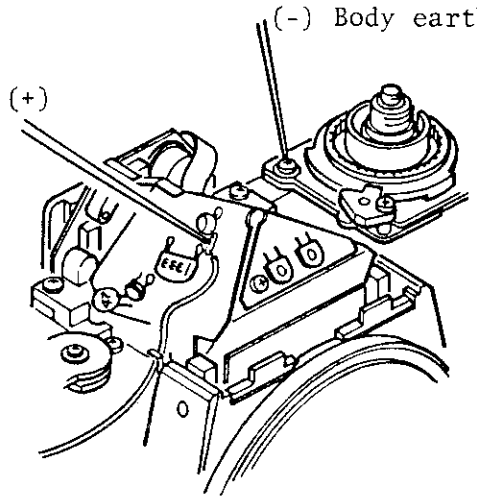
	Main SW	Tester range	Tester terminal		Tester indication	Checking point
			Red (+)	Black(-)		
(19)	OFF	DCV	White-land from shutter magnet	Body earth	Approx. 6V	1. Malsolder, body earth broken for the orange and white leadwires 2. Magnet circuit-wrong → replacement of shutter
(20)	OFF	OHMS	Orange leadwire from the shutter magnet Note: Unsolder orange and white leadwire	White leadwire	280 Ω | 340 Ω	
(21)	ON	DCV	Open aperture coupling pins NO. 9 pin NO. 11 pin NO. 10 pin	Body earth	Approx. 1.5V 1.5V 1.8V	1. Poor contact of pins to AVC p. board

See next page for tester terminal connecting points.

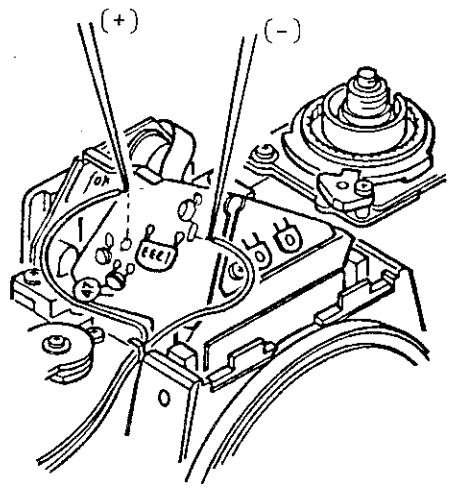
(+) White-land (Shutter maggnet)

(+) Orange leadwire
(-) White "

(19)



(20)



(+) NO. 9, 10 and 11 pins

(21)

(-) Body earth

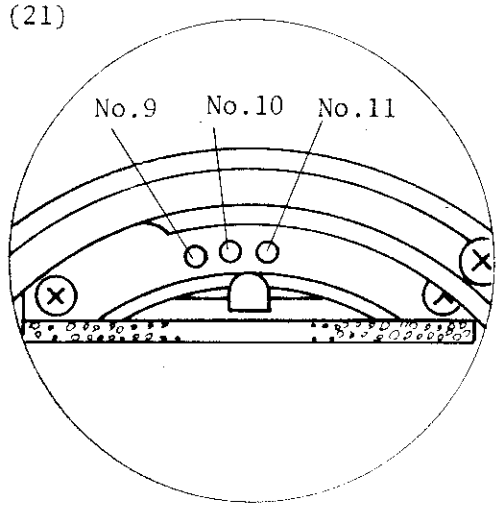
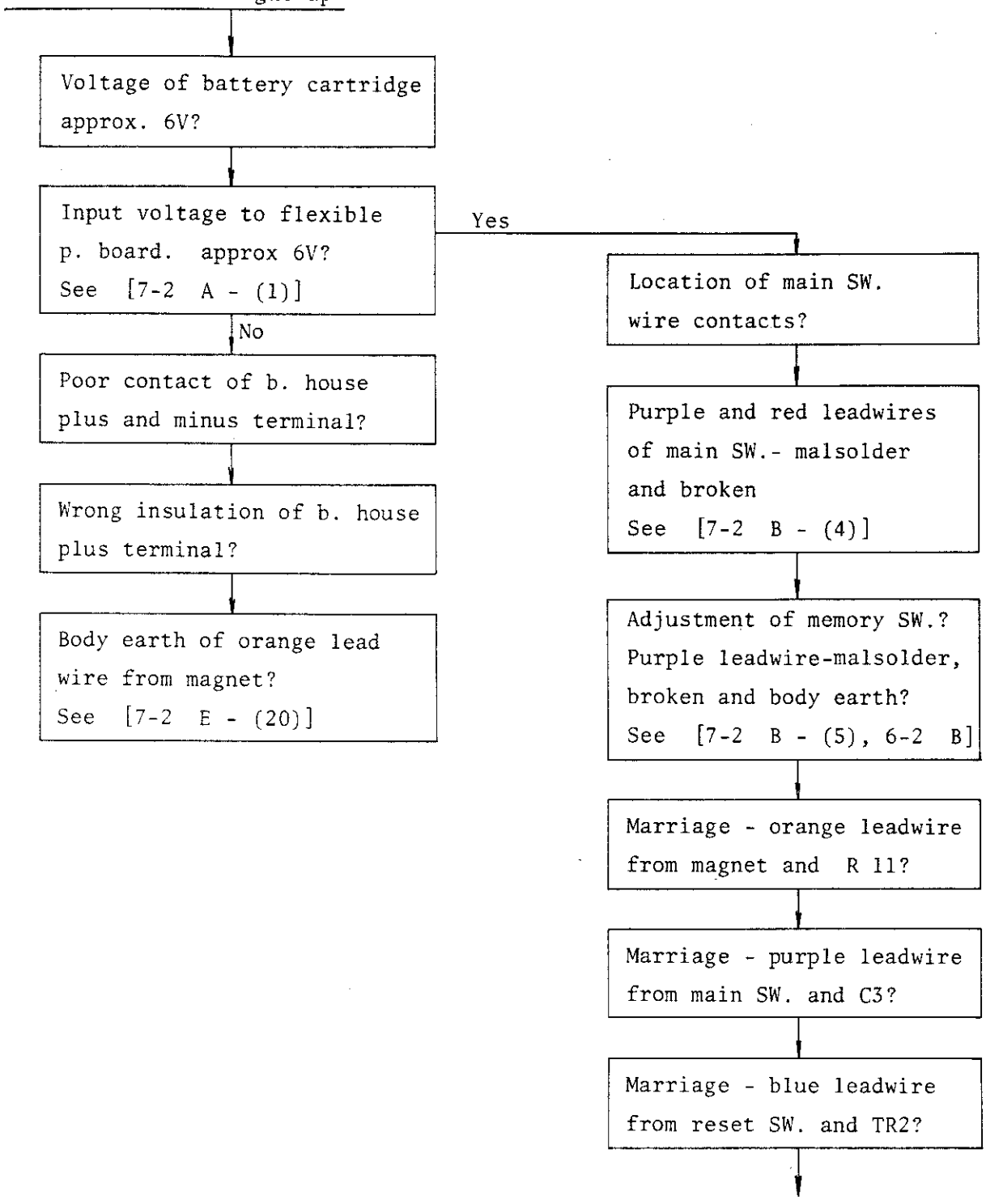
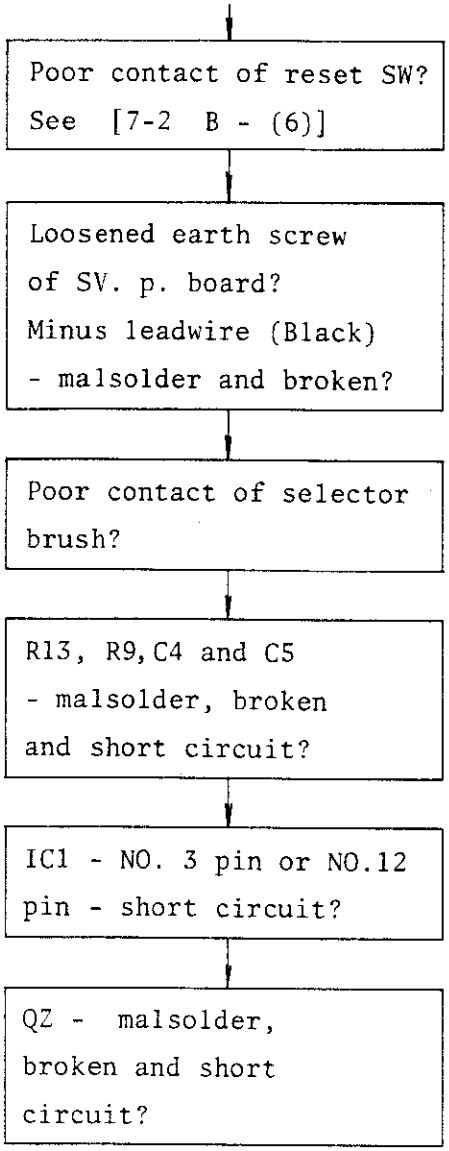


Fig.64

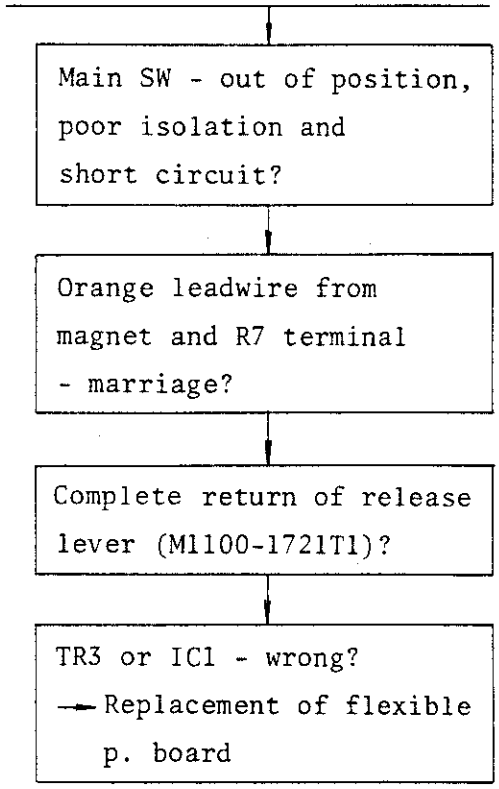
7-3 Trouble shooting

1. LED does not light up

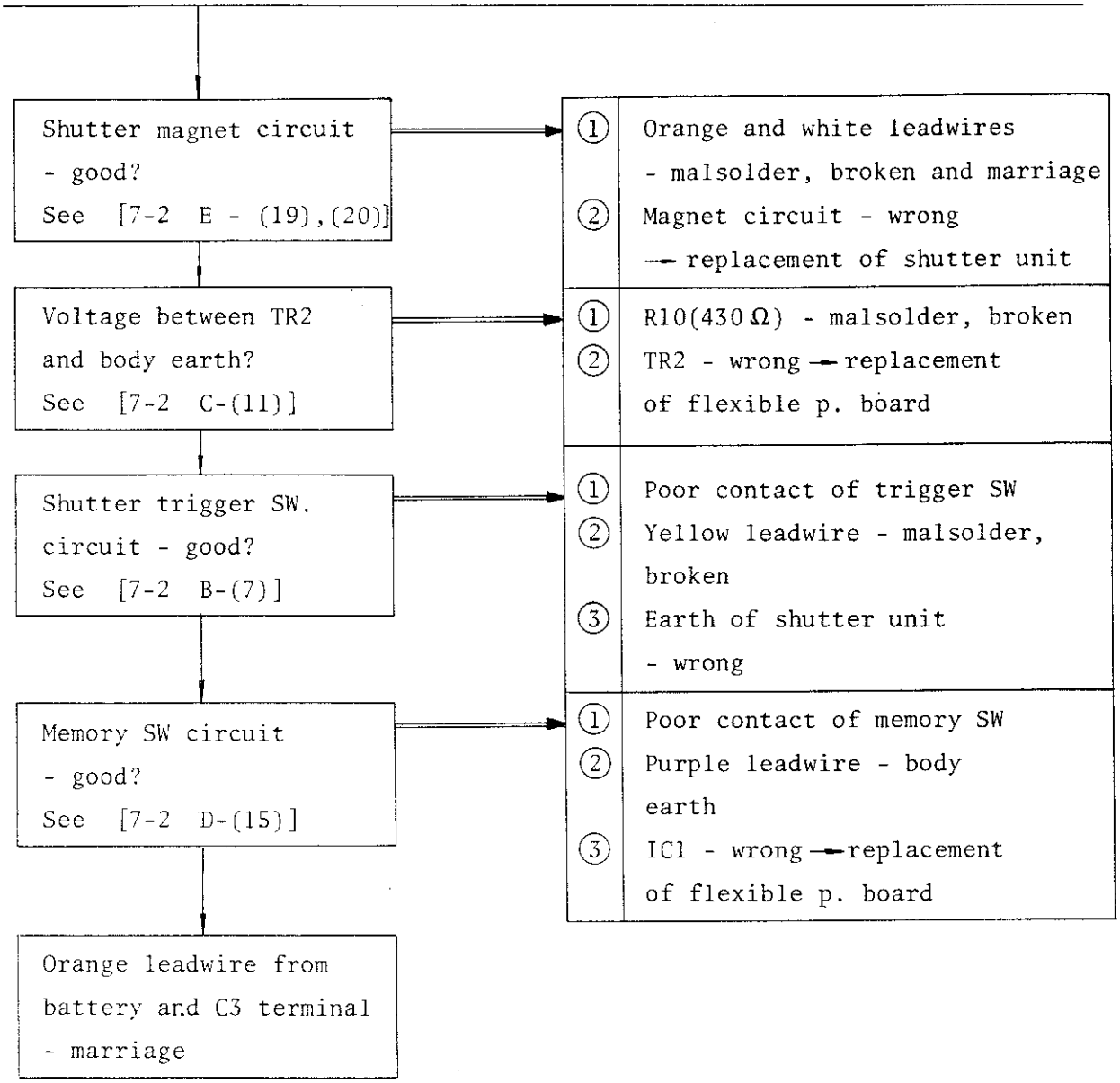

Voltage of battery cartridge approx. 6V?
Input voltage to flexible p. board. approx 6V? See [7-2 A - (1)]
Yes
No
Poor contact of b. house plus and minus terminal?
Wrong insulation of b. house plus terminal?
Body earth of orange lead wire from magnet? See [7-2 E - (20)]
Location of main SW. wire contacts?
Purple and red leadwires of main SW.- malsolder and broken See [7-2 B - (4)]
Adjustment of memory SW.? Purple leadwire-malsolder, broken and body earth? See [7-2 B - (5), 6-2 B]
Marriage - orange leadwire from magnet and R 11?
Marriage - purple leadwire from main SW. and C3?
Marriage - blue leadwire from reset SW. and TR2?


Poor contact of reset SW?
See [7-2 B - (6)]
Loosened earth screw of SV. p. board?
Minus leadwire (Black) - malsolder and broken?
Poor contact of selector brush?
R13, R9, C4 and C5 - malsolder, broken and short circuit?
IC1 - NO. 3 pin or NO.12 pin - short circuit?
QZ - malsolder, broken and short circuit?

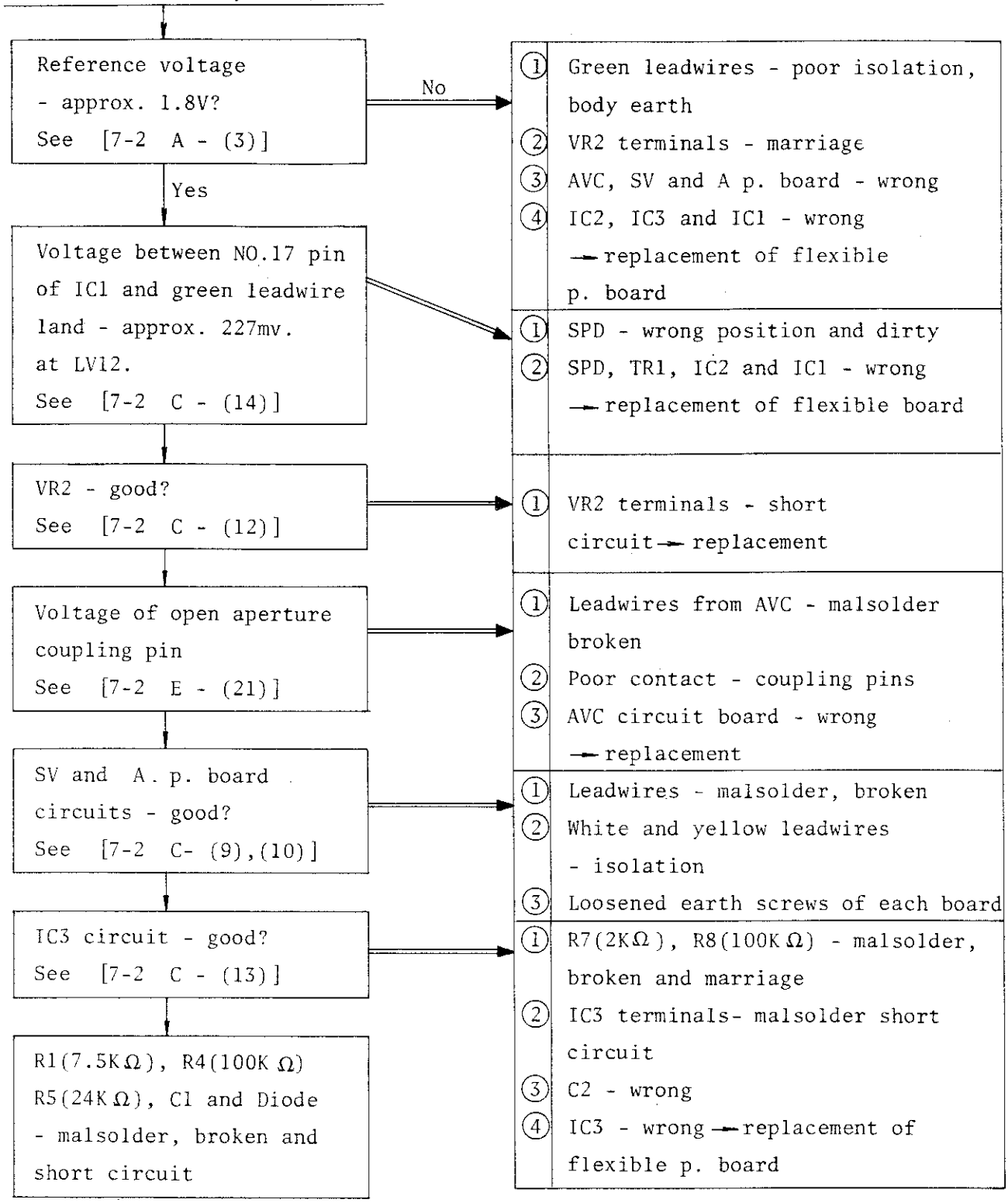
2. Can not put out LED


Main SW - out of position, poor isolation and short circuit?
Orange leadwire from magnet and R7 terminal - marriage?
Complete return of release lever (M1100-1721T1)?
TR3 or IC1 - wrong?
→ Replacement of flexible p. board

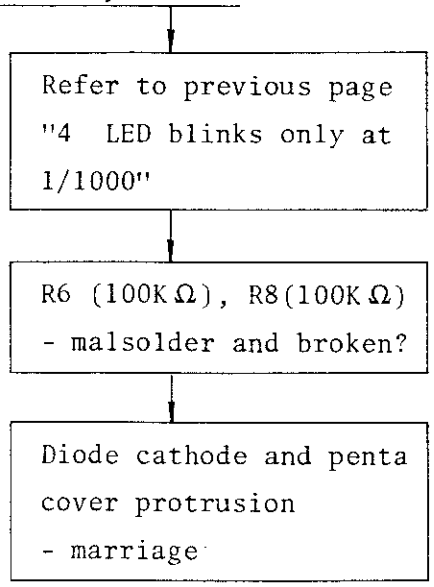
3. Shutter speed is always same (about 1/1000), but LED responds correctly


Shutter magnet circuit - good? See [7-2 E - (19),(20)]
① Orange and white leadwires - malsolder, broken and marriage
② Magnet circuit - wrong → replacement of shutter unit
Voltage between TR2 and body earth? See [7-2 C-(11)]
① R10(430Ω) - malsolder, broken
② TR2 - wrong → replacement of flexible p. board
Shutter trigger SW. circuit - good? See [7-2 B-(7)]
① Poor contact of trigger SW
② Yellow leadwire - malsolder, broken
③ Earth of shutter unit - wrong
Memory SW circuit - good? See [7-2 D-(15)]
① Poor contact of memory SW
② Purple leadwire - body earth
③ IC1 - wrong → replacement of flexible p. board
Orange leadwire from battery and C3 terminal - marriage

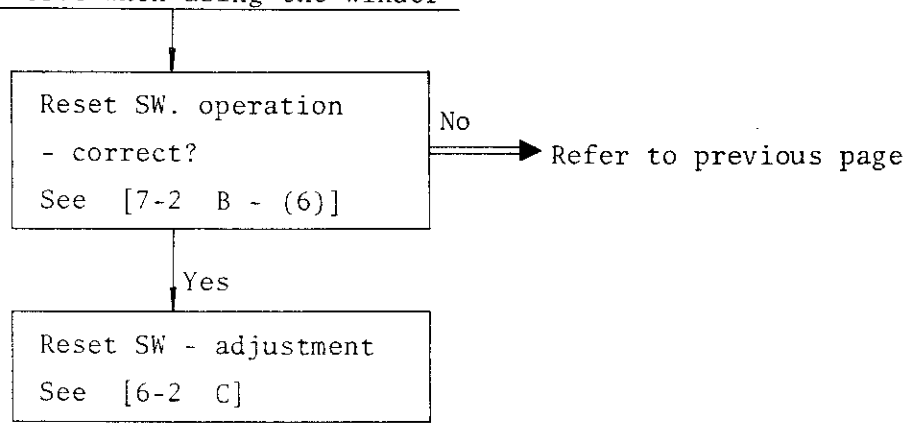
4. LED blinks only at 1/1000


Reference voltage - approx. 1.8V? See [7-2 A - (3)]
No
① Green leadwires - poor isolation, body earth
② VR2 terminals - marriage
③ AVC, SV and A p. board - wrong
④ IC2, IC3 and IC1 - wrong → replacement of flexible p. board
Yes
Voltage between NO.17 pin of IC1 and green leadwire land - approx. 227mv. at LV12. See [7-2 C - (14)]
① SPD - wrong position and dirty
② SPD, TR1, IC2 and IC1 - wrong → replacement of flexible board
VR2 - good? See [7-2 C - (12)]
① VR2 terminals - short circuit → replacement
Voltage of open aperture coupling pin See [7-2 E - (21)]
① Leadwires from AVC - malsolder broken
② Poor contact - coupling pins
③ AVC circuit board - wrong → replacement
SV and A. p. board circuits - good? See [7-2 C- (9),(10)]
① Leadwires - malsolder, broken
② White and yellow leadwires - isolation
③ Loosened earth screws of each board
IC3 circuit - good? See [7-2 C - (13)]
① R7(2KΩ), R8(100KΩ) - malsolder, broken and marriage
② IC3 terminals- malsolder short circuit
③ C2 - wrong
④ IC3 - wrong → replacement of flexible p. board
R1(7.5KΩ), R4(100KΩ) R5(24KΩ), C1 and Diode - malsolder, broken and short circuit

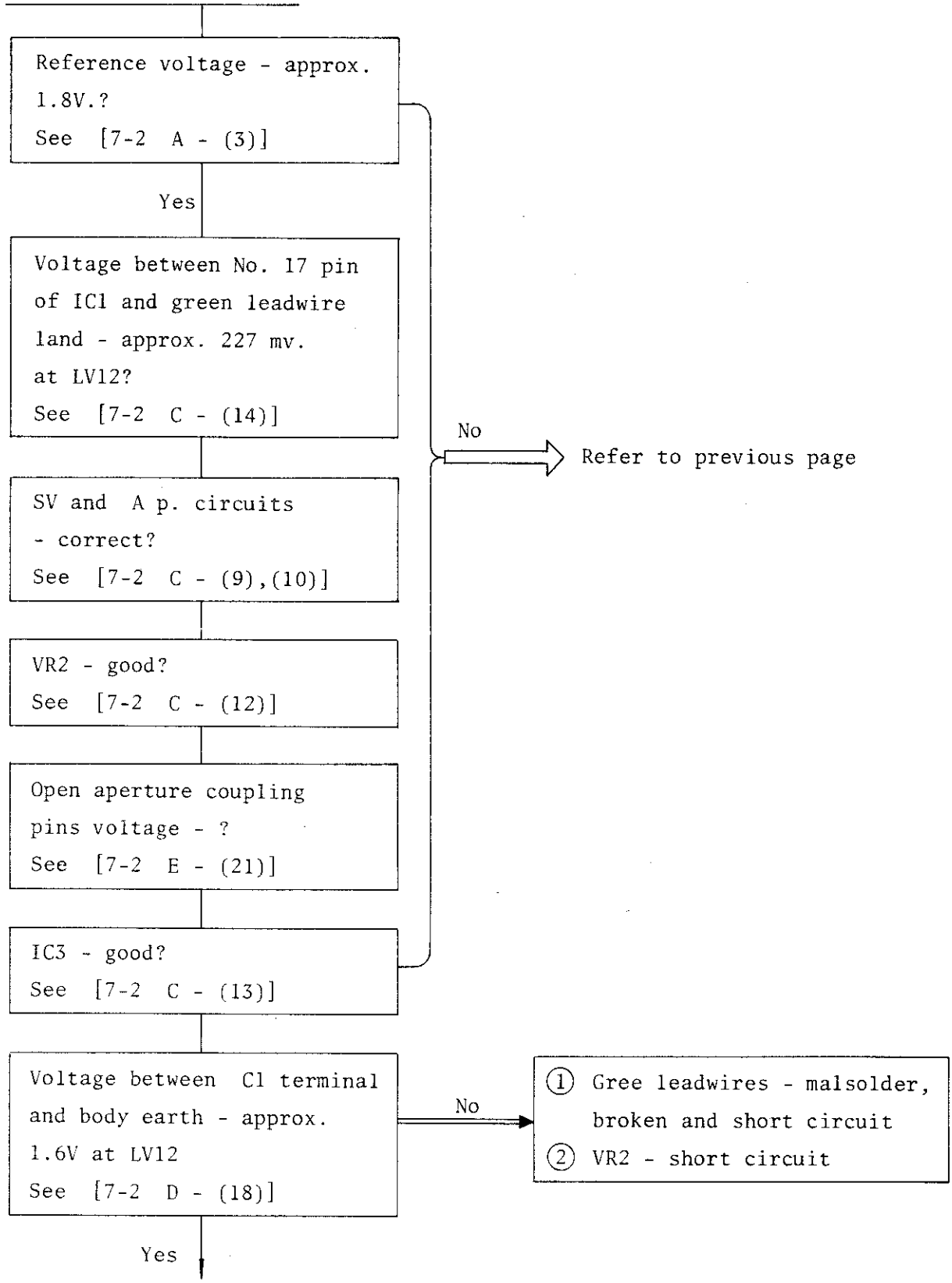
5. LED blinks only at LT

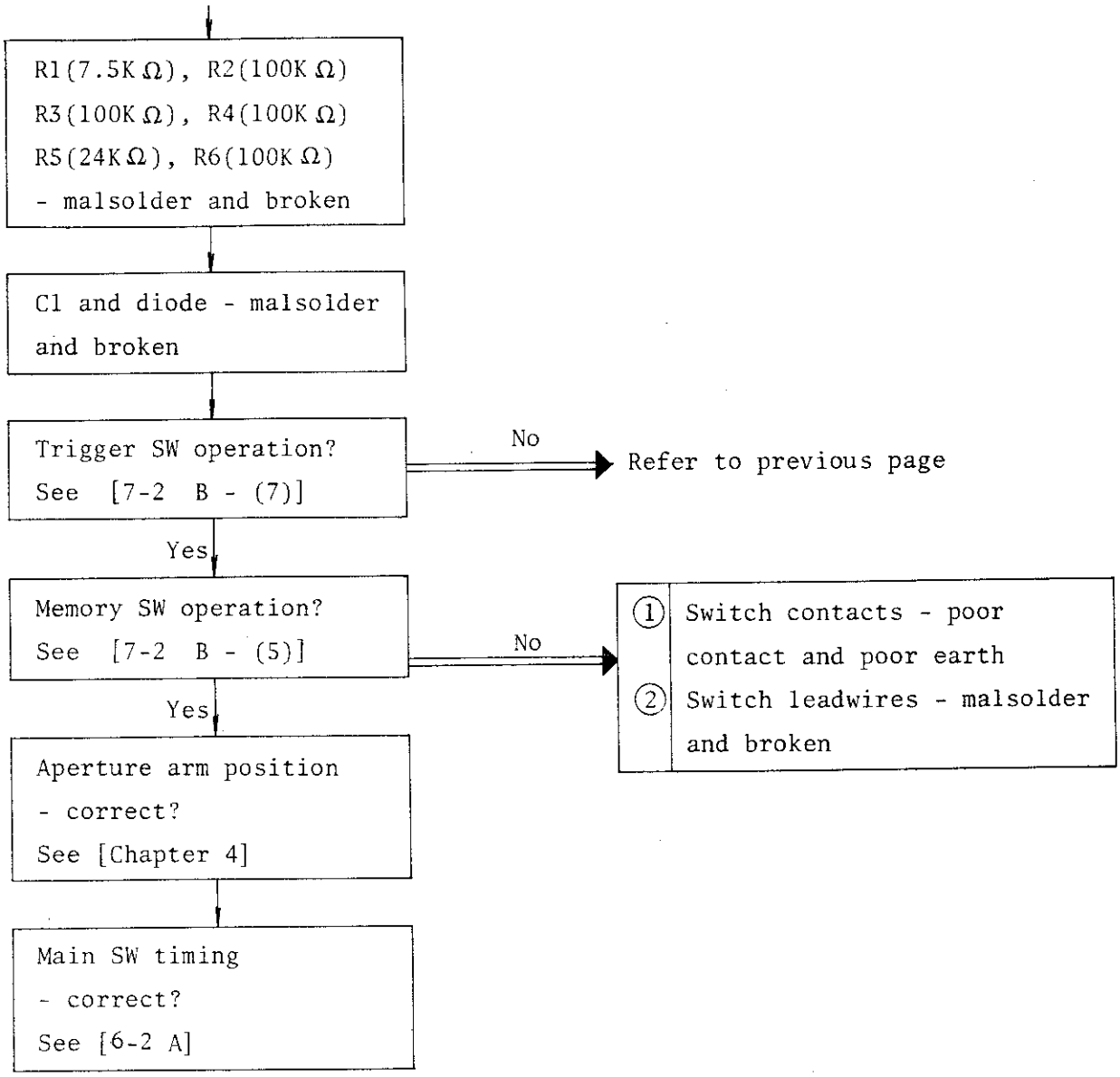


6. Can not reset when using the winder

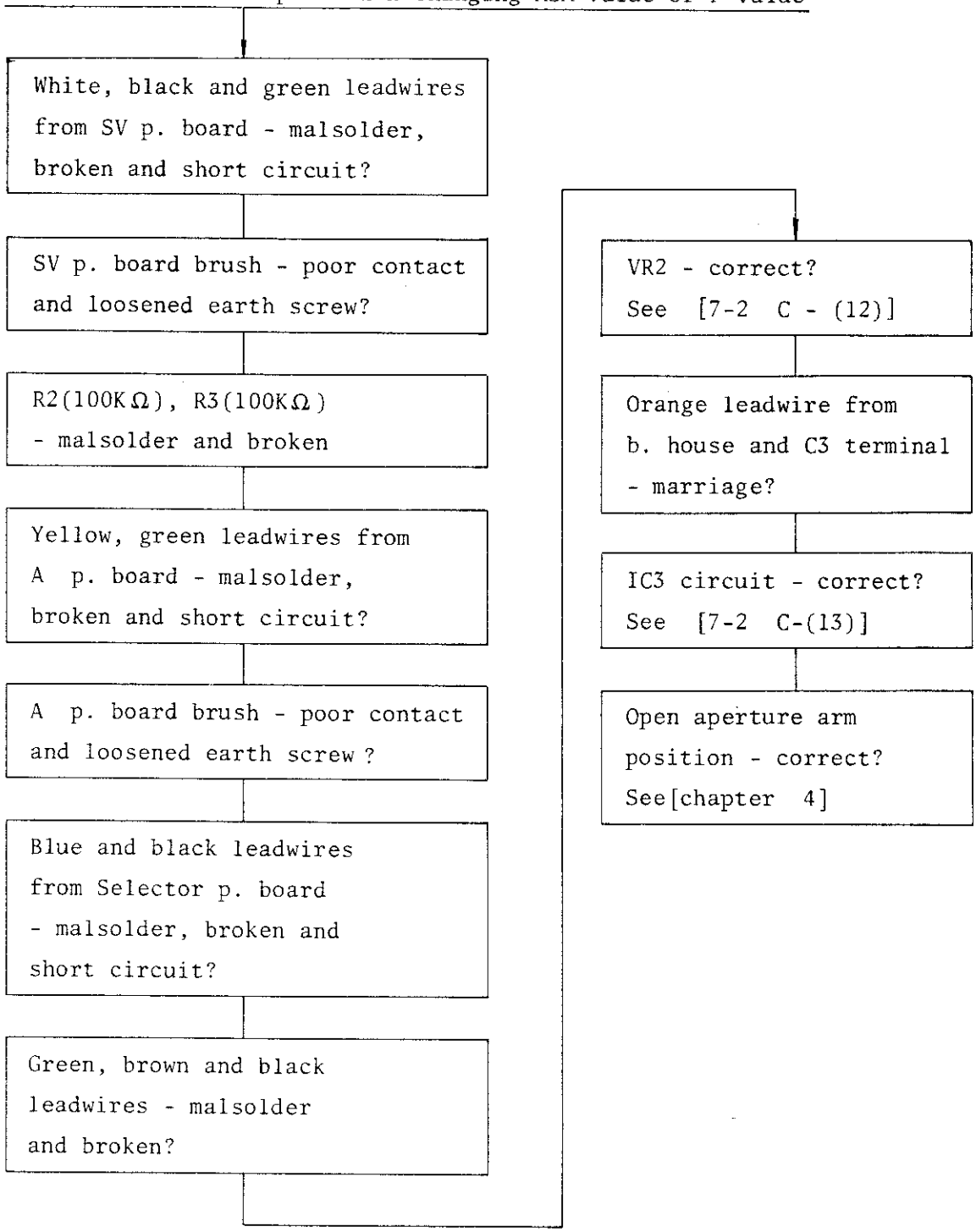


7. Can not adjust AE


Reference voltage - approx. 1.8V.?
See [7-2 A - (3)]
Yes
No
Refer to previous page
Voltage between No. 17 pin of IC1 and green leadwire land - approx. 227 mv. at LV12?
See [7-2 C - (14)]
SV and A p. circuits - correct?
See [7-2 C - (9),(10)]
VR2 - good?
See [7-2 C - (12)]
Open aperture coupling pins voltage - ?
See [7-2 E - (21)]
IC3 - good?
See [7-2 C - (13)]
Voltage between C1 terminal and body earth - approx. 1.6V at LV12
See [7-2 D - (18)]
No
① Gree leadwires - malsolder, broken and short circuit
② VR2 - short circuit
Yes


R1(7.5KΩ), R2(100KΩ)
R3(100KΩ), R4(100KΩ)
R5(24KΩ), R6(100KΩ)
- malsolder and broken
C1 and diode - malsolder and broken
Trigger SW operation?
See [7-2 B - (7)]
No
Refer to previous page
Yes
Memory SW operation?
See [7-2 B - (5)]
No
① Switch contacts - poor contact and poor earth
② Switch leadwires - malsolder and broken
Yes
Aperture arm position
- correct?
See [Chapter 4]
Main SW timing
- correct?
See [6-2 A]

8. LED does not respond when changing ASA value or F value


White, black and green leadwires from SV p. board - malsolder, broken and short circuit?
SV p. board brush - poor contact and loosened earth screw?
R2(100KΩ), R3(100KΩ) - malsolder and broken
Yellow, green leadwires from A p. board - malsolder, broken and short circuit?
A p. board brush - poor contact and loosened earth screw ?
Blue and black leadwires from Selector p. board - malsolder, broken and short circuit?
Green, brown and black leadwires - malsolder and broken?
VR2 - correct? See [7-2 C - (12)]
Orange leadwire from b. house and C3 terminal - marriage?
IC3 circuit - correct? See [7-2 C-(13)]
Open aperture arm position - correct? See[chapter 4]

9. AE lock does not operate

- Position of selector dial - AE lock?
- Blue leadwire for selector - malsolder, broken and short circuit?
- Selector brush - poor contact?
- C7 - short circuit and broken?
- IC1 control unit - wrong?

10. Becoming AE lock at Auto

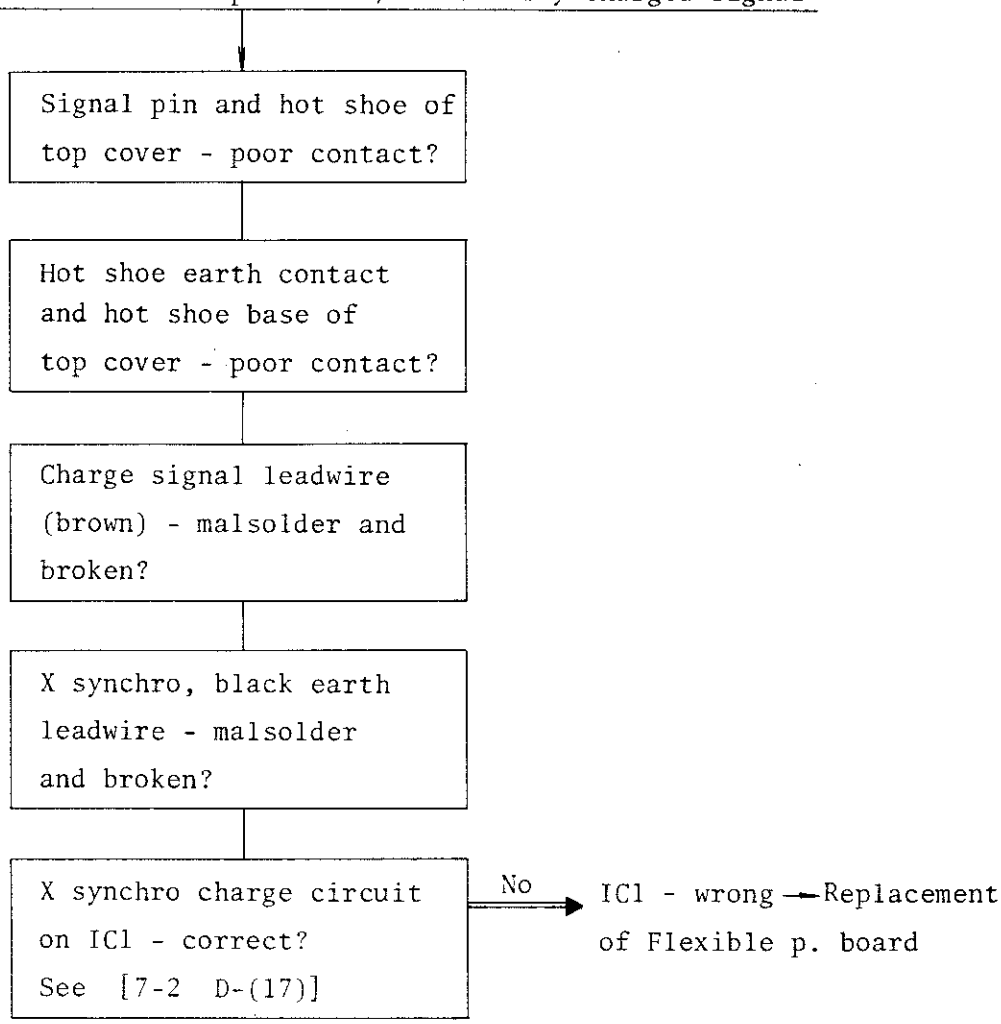
11. LED lights up only at 1/60

- Signal pin and hot shoe of top cover - poor isolation and marriage ?
- Hot shoe earth contact and charge signal contact - marriage?
- X synchro circuit on IC1? See [7-2 D-(17)]

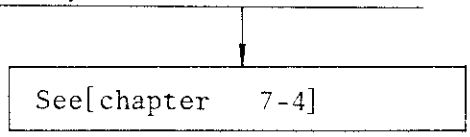
No →

1. Synchro, contacts and leadwires - malsolder and poor isolation
2. IC1 - wrong → replacement of flexible p. board

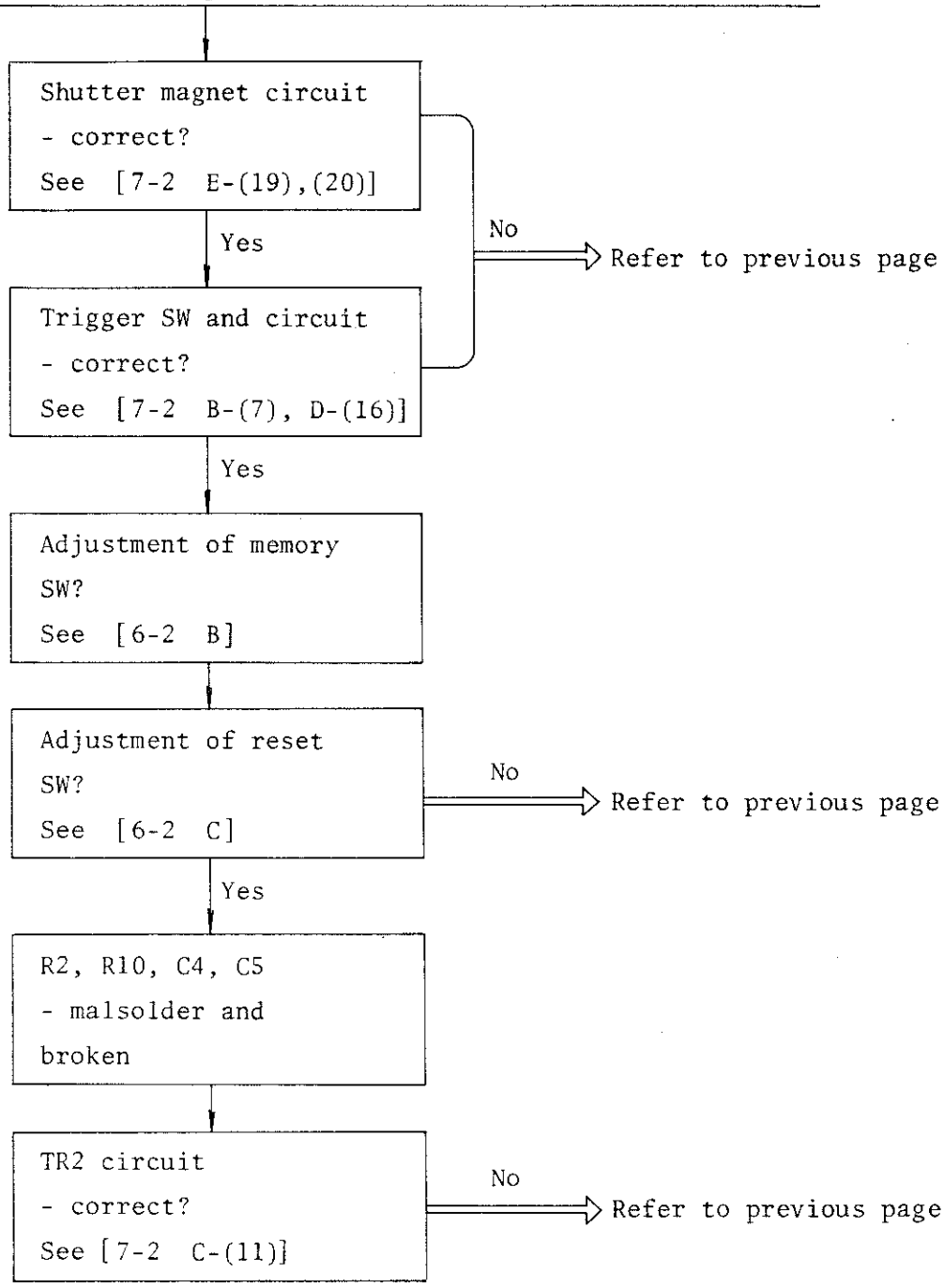
12. LED does not respond on 1/60 at fully charged signal


Signal pin and hot shoe of top cover - poor contact?
Hot shoe earth contact and hot shoe base of top cover - poor contact?
Charge signal leadwire (brown) - malsolder and broken?
X synchro, black earth leadwire - malsolder and broken?
X synchro charge circuit on IC1 - correct? See [7-2 D-(17)]
No
IC1 - wrong
Replacement of Flexible p. board

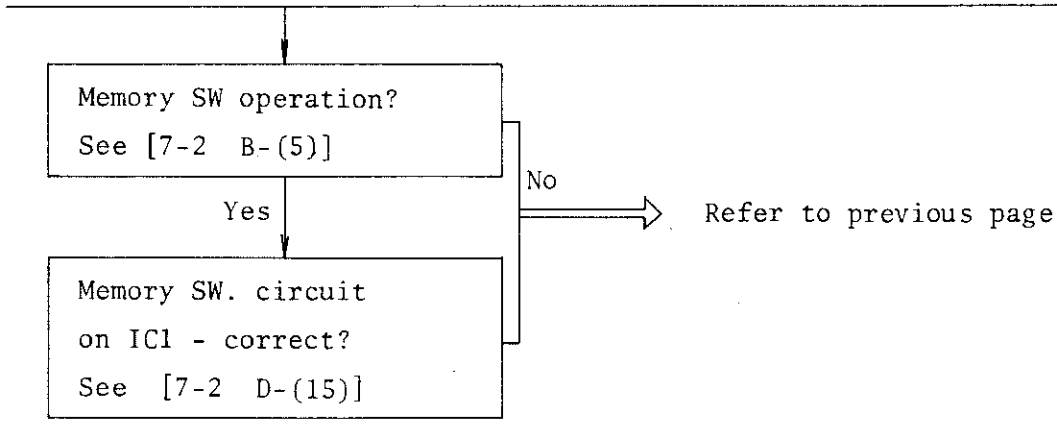
13. Battery leak and exhaustion



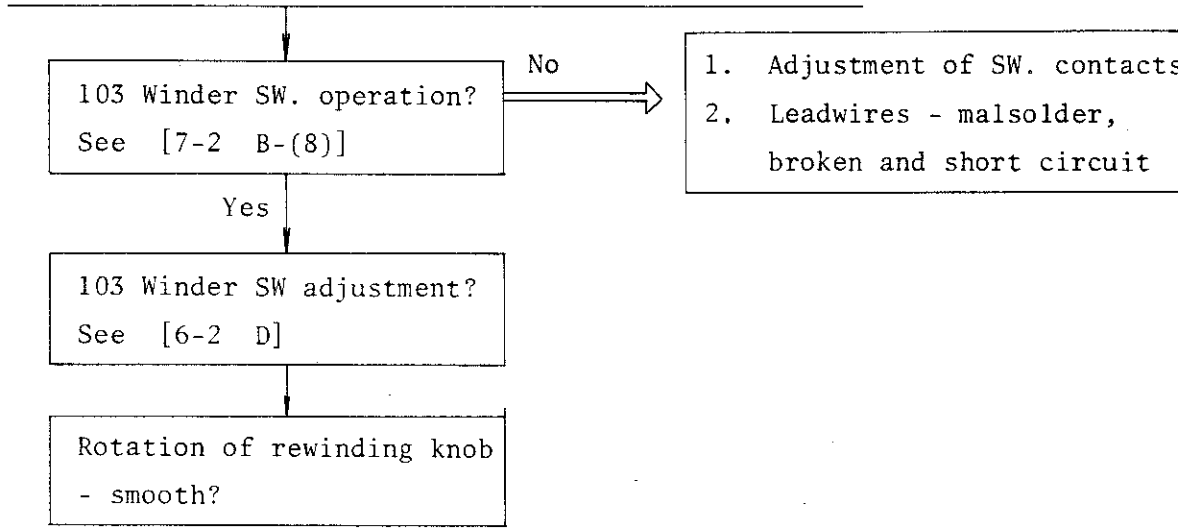
14. Shutter speed becomes bulb at Auto (Selector dial)



15. When releasing shutter, LED light up on several shutter speed scales continuously



16. With the winder, continuous sequence photography is impossible



17. Mamiyalite does not fire on hot shoe

18. When attaching Mamiyalite to the hot shoe, fire at once

- Signal pin and hot shoe - poor isolation, marriage?
- X synchro, contact and hot shoe earth contact - touch to top cover hot shoe?
- X synchro, earth black leadwire between SV p. board and hot shoe earth contact - malsolder broken and short circuit?
- Shutter synchro circuit - short circuit, Red leadwire - body earth, broken and mal-solder?
- X synchro, circuit on IC1 - correct? See [7-2 D-(17)]
- X synchro, terminal - short circuit?

7-4 Battery leak and exhaustion

A. Check the battery leak with the dummy battery and a tester.

1. Arrange a tester, 6 voltage battery and EN-1 dummy battery. Then make wiring arrangements of them as shown in Fig. 65.
2. Insert the dummy battery into the camera body.
3. When winding the film advance lever and not releasing the shutter, you must measure as follows.
   a. Main switch OFF —— must be under 10μA
   b. Main switch ON —— 10mA ~20mA

B. Check and repair:

1. If it is out of the limit you should check and repair as follows.
2. After removing the dummy battery insert the normal battery cartridge into the camera body.
   Check the LED does not light up when the main switch turns off.

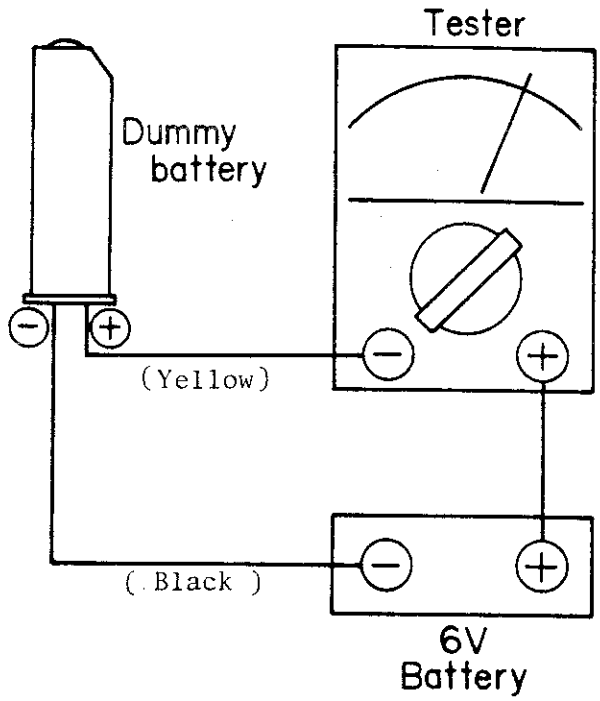


Fig.65

Main SW = OFF Tester range = DCmA

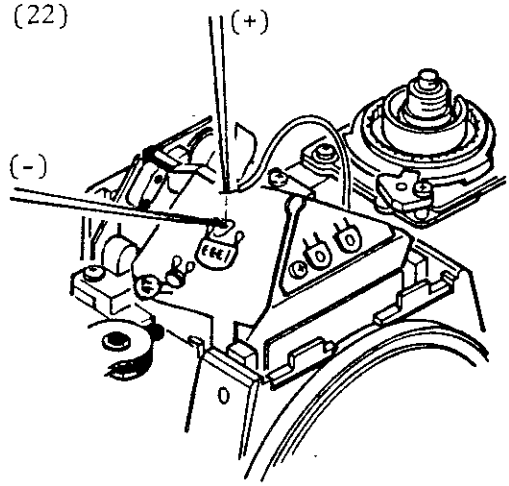
	Tester terminal		Tester indication	Check point
	Red (+)	Black(-)		
(22)	Orange leadwire from battery house	Orange leadwire land	Under 10μA	1) Insulation and body earth of orange leadwire 2) Insulation of battery house plus contact
(23)	White leadwire from shutter magnet	White leadwire land	"	3) TR2 - wrong → replacement of flexible p. board
(24)	Orange leadwire from shutter magnet	Orange leadwire land	"	4) Insulation and body earth of white and orange lead-wires 5) Insulation of shutter unit magnet circuit
(25)	Purple leadwire from main SW.	Purple leadwire land	"	6) Insulation of purple lead-wire and main SW. 7) TR3-wrong → replacement of flexible p. board

Note: 1. Unsolder each leadwire when measuring.
2. After measuring, resolder it and go ahead to next check.
3. When you could not find any fault, replace the flexible printed board.

(+) Orange leadwire from battery house

(-) Its land

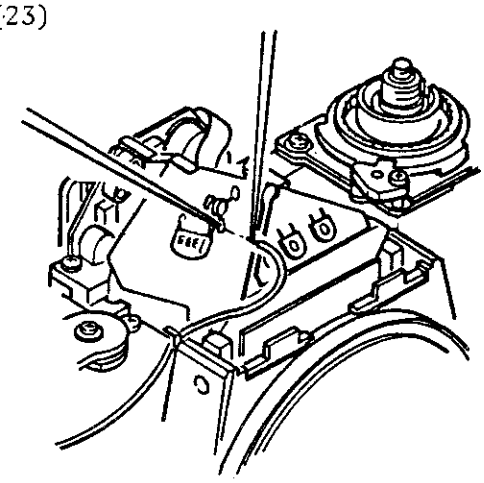
(22)



(+) White leadwire from shutter magnet

(-) Its land

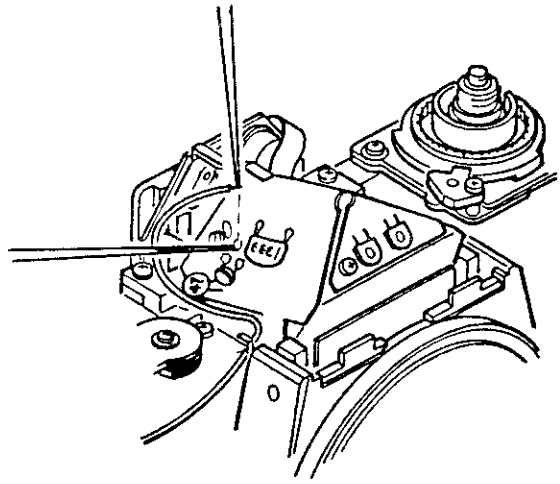
(23)



(+) Orange leadwire from shutter magnet

(-) Its land

(24)



(+) Purple leadwire from main SW.

(-) Its land

(25)

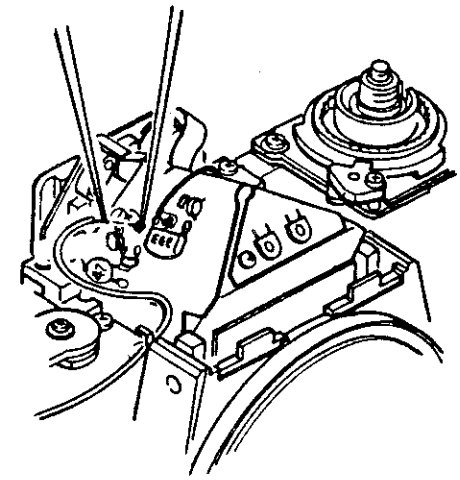


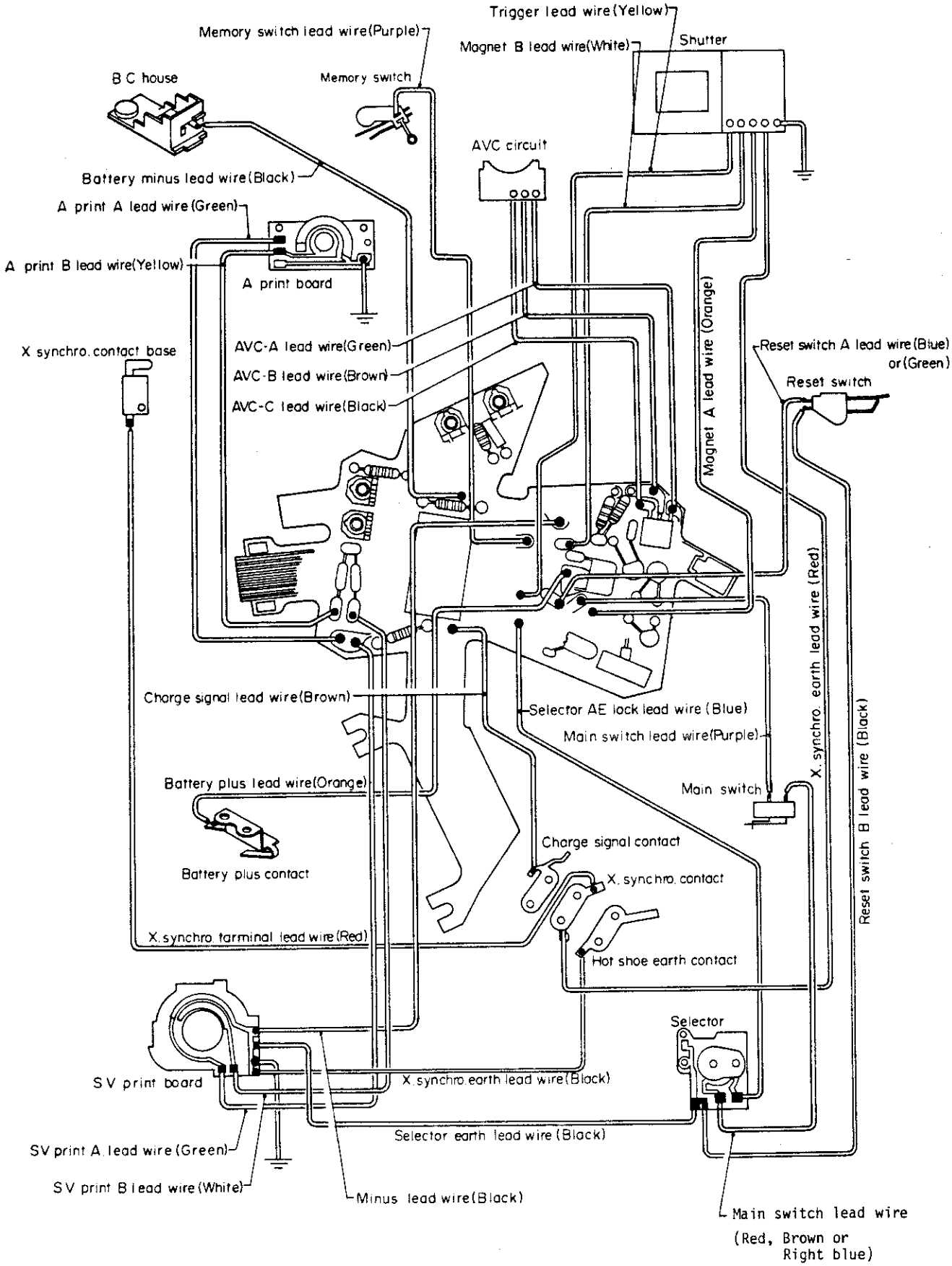
Fig.66

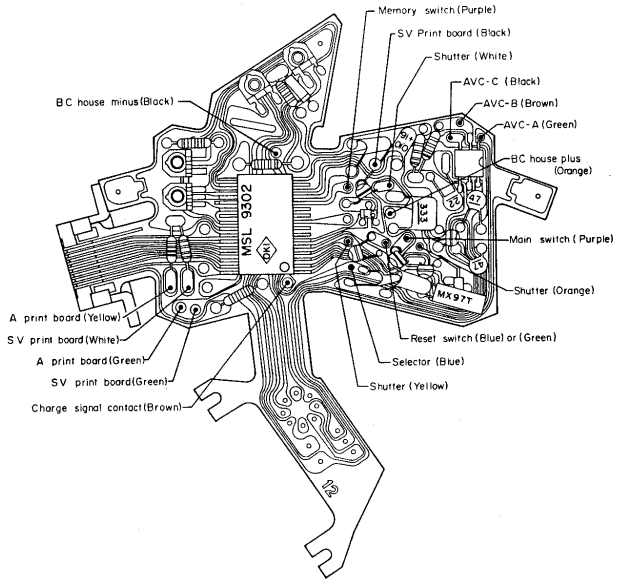
7-5 Phenomenon for malsoldering, broken, short circuits (marriage)

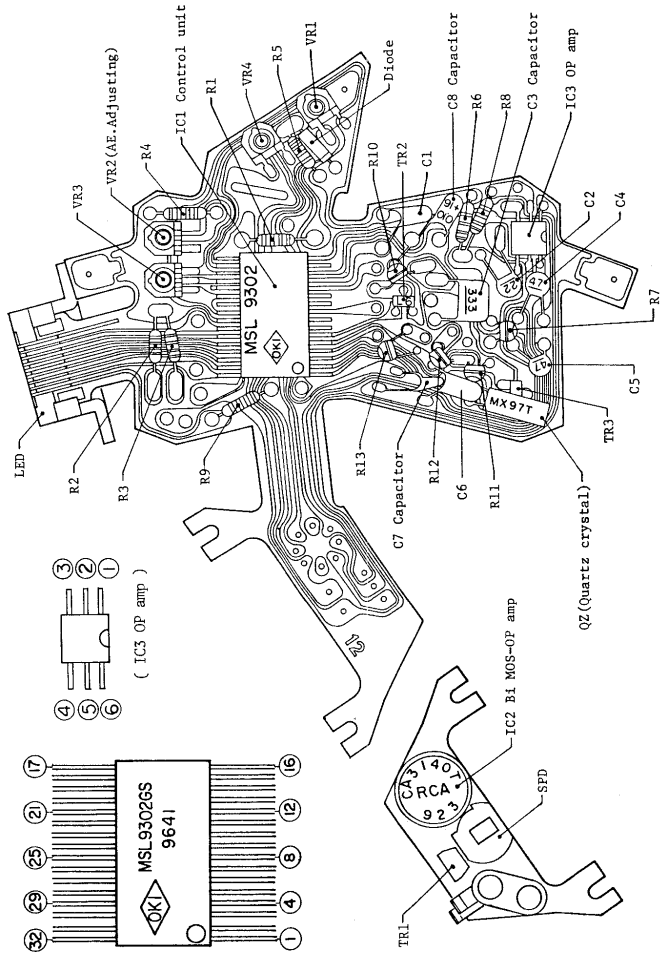
A	Malsolder and broken	6V	LED	Remarks
1	Black leadwire from SV. p. board	O	X	
2	White leadwire from SV. p. board	O	O	AE adjusting Impossible
3	Green leadwire from SV. p. board	O	O	Blinks at 1/1000
4	Black leadwire SV.p.board to selector board	O	O	Does not respond
5	Purple leadwire from memory SW.	O	X	
6	Red and purple leadwires from main SW.	O	X	
7	Blue leadwire from selector	O	O	Does not respond
8	Black leadwire from reset SW. to selector board	O	O	With winder, AE is no good
9	Orange leadwire from shutter magnet	O	O	LED responds, but inaccurate shutter speed
10	White leadwire from shutter magnet	O	O	
11	Yellow leadwire from shutter trigger SW.	O	O	" "
12	Green leadwire from AVC circuit	O	O	Stationary LED at LT
13	Brown leadwire from AVC circuit	O	O	Dull respondency
14	Black leadwire from AVC circuit	O	O	AE adjusting — Impossible
15	Yellow leadwire from A. printed board	O	O	Stationary LED at LT
16	Green leadwire from A. printed board	O	O	When rotating A-ring, LED does not respond.
17	Red leadwire from shutter synchro.	O	O	Flash gun — no fire
18	Orange and black leadwires from battery	X	X	
19	Black leadwire from SV.p. board to hot shoe earth contact	O	O	Flash gun — no fire
20	R13 Resister	O	O	With winder, can not reset.
21	C7 capacitor	O	O	Shutter speed become AE lock at auto.

B	Short circuit (marriage)	6V	LED	Remarks
1	Short of BC. housing	X	X	
2	Body earth of orange leadwire from shutter magnet	X	X	
3	Orange leadwire from battery and leg of C3 capacitor	O	O	Inaccurate shutter speed
4	Orange leadwire from shutter and R10 resistance	O	X	" "
5	Purple leadwire from main SW and leg of C3	O	X	
6	Blue leadwire from reset SW. and TR2	O	X	
7	Reset SW. contacts	O	X	
8	Blue leadwire from reset SW. and R12 resistance	O	O.X	Main SW OFF - LED O " ON - LED X Shutter speed becames bulb at auto.
9	Green and brown leadwires for IC3	O	O	Blinks at 1/1000
10	Brown and black leadwires for IC3	O	O	Blinks at LT
11	Body earth of yellow leadwire from A. printed board	O	O	When turning A-ring, LED does not respond.
12	Hot shoe earth contact and X synchro contact	O	O	Flash circuit ~ short
13	Hot shoe earth contact and charge signal contact	O	O	Stationary LED at 1/60
14	Soldering land of brown leadwire from charge signal contact and body earth	O	O	" "
15	VR2 variable resistor	O	O	LED does not respond
16	Purple leadwire from main SW. and orange leadwire from shutter	O	X	
17	Body earth of white leadwire from shutter magnet	O	O	Shutter speed become bulb at Auto.
18	Body earth of red leadwire from shutter synchro.	O	O	When attaching the Mamiyalite to the hot shoe, fire at once
19	Terminals of C8 capacitor	O	O	Stationary LED
20	Diode and arm of penta cover	O	O	at LT.
21	Purple leadwire from memory SW. and C8 capacitor	O	O	Dull respondency

ZE Electro circuit diagram



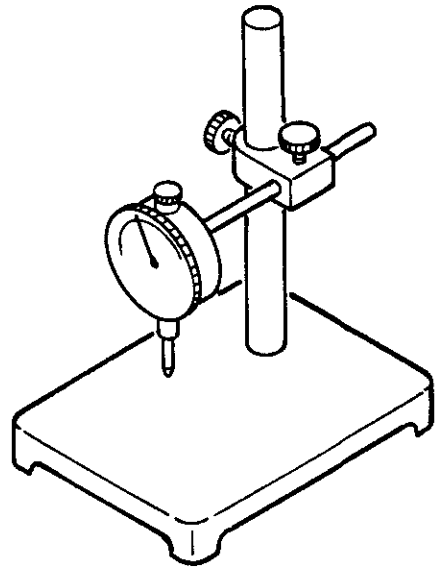

Memory switch (Purple)
SV Print board (Black)
Shutter (White)
AVC-C (Black)
AVC-B (Brown)
AVC-A (Green)
BC house plus (Orange)
BC house minus (Black)
Main switch (Purple)
Shutter (Orange)
Reset switch (Blue) or (Green)
Selector (Blue)
Shutter (Yellow)
A print board (Yellow)
SV print board (White)
A print board (Green)
SV print board (Green)
Charge signal contact (Brown)
MSL 9302
OKI
MX977
333


VR3
VR2 (AE. Adjusting)
R4
IC1 Control unit
R1
VR4
R5
VR1
Diode
C8 Capacitor
R6
R8
C3 Capacitor
IC3 OP amp
R10
TR2
C1
C2
C4
R7
C5
TR3
LED
R2
R3
R9
R13
C7 Capacitor
R12
C6
R11
QZ (Quartz crystal)
MSL 9302
OKI
MX977
333
(IC3 OP amp)
MSL9302GS
9641
IC2 Bi MOS-OP amp
SPD
TR1
CA3140T
RCA

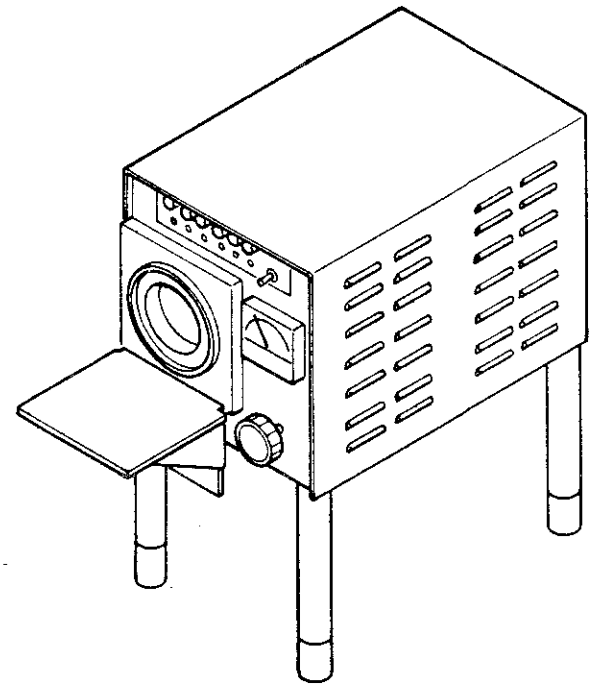
Repair Tool List and Special Measuring Instruments for

Mamiya ZE

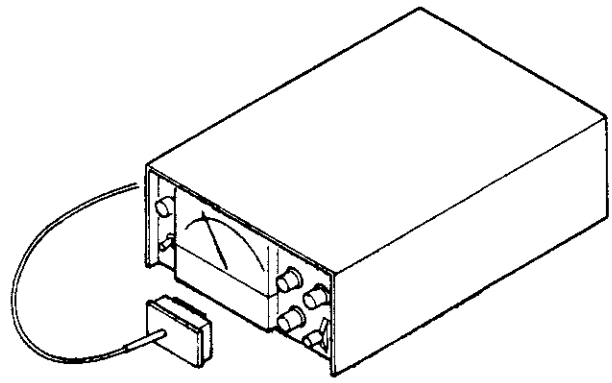
U-1 Measuring instrument with dial gauge



U-7 Light source box
Model LB360

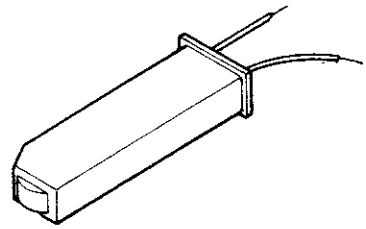


U-8 EE Camera Tester
Model CEE-1A

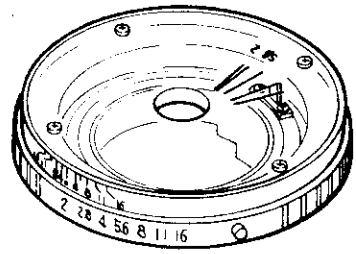


Tool list

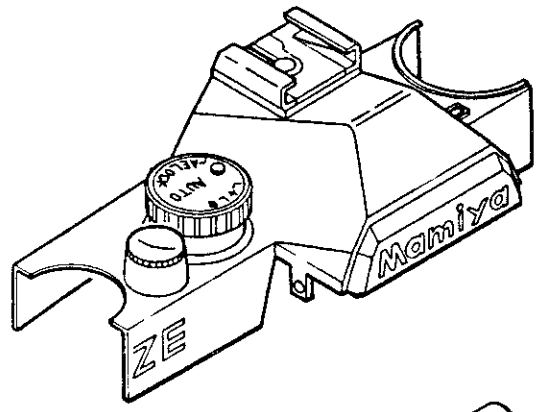
EN-1 Dummy battery
For checking battery leak
and exhaustion



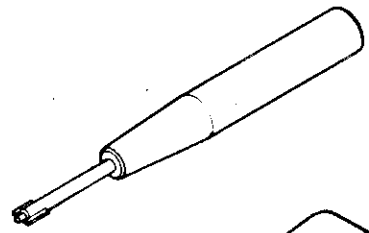
EN-2 Aperture arm position gauge
For checking and adjusting
of the aperture arm



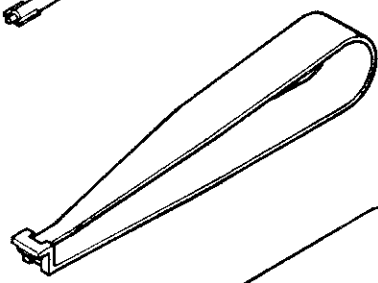
EN-3 Working top cover
For checking and
adjusting AE



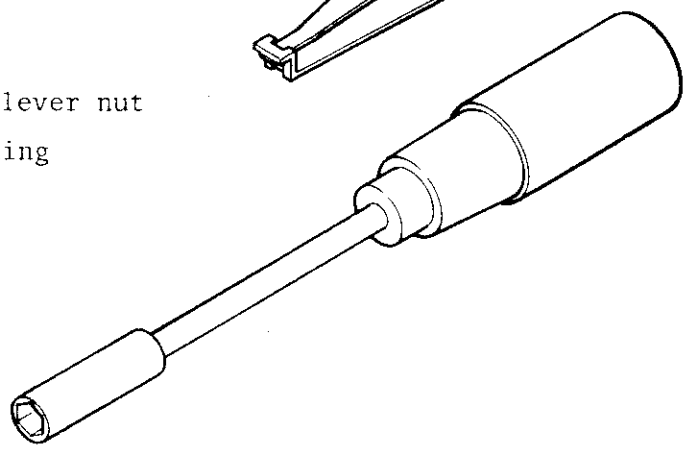
EN-4 AE adjusting driver
For adjusting AE by turning
variable resistor



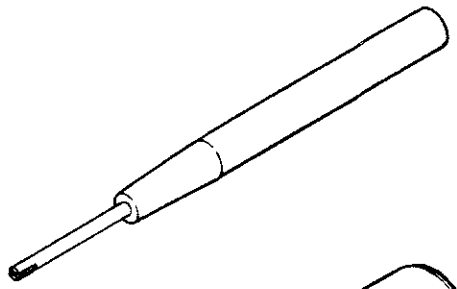
EN-5 Fresnel lens clip
For removing fresnel lens



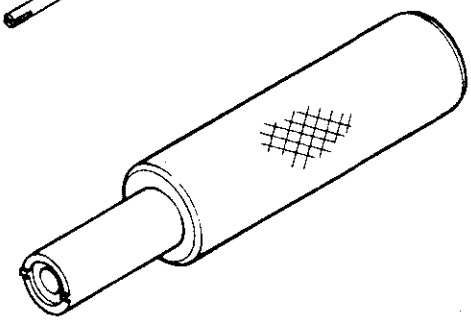
EN-6 Spanner for film advance lever nut
For tightening and loosening
winding shaft nut



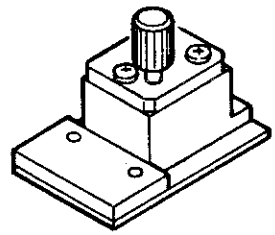
EN-7 Switch contact bender
For adjusting switch
contact



EN-8 Spanner for film speed scale nut
For tightening and loosening film
speed compensation dial nut

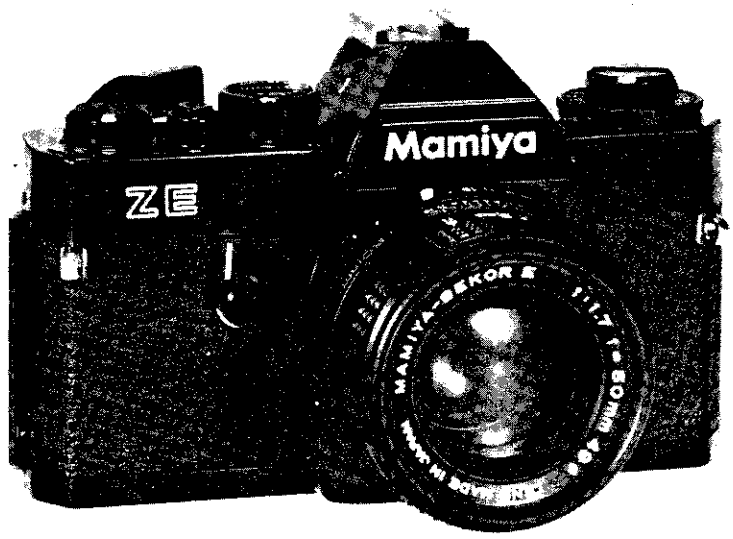


EN-9 Flash contact signal gauge
For checking flash
contact signal



EXPLODED VIEWS

Mamiya ZE

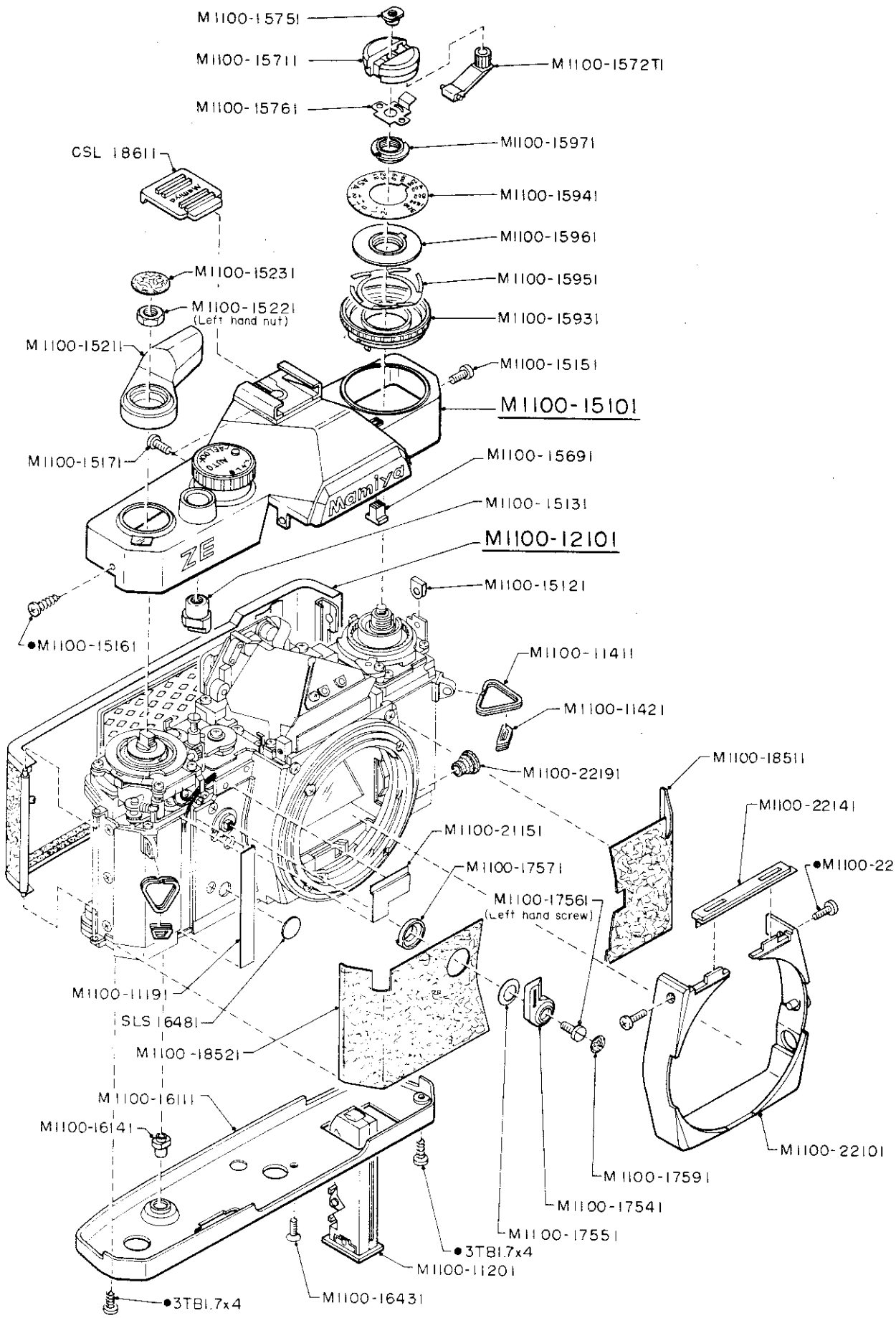


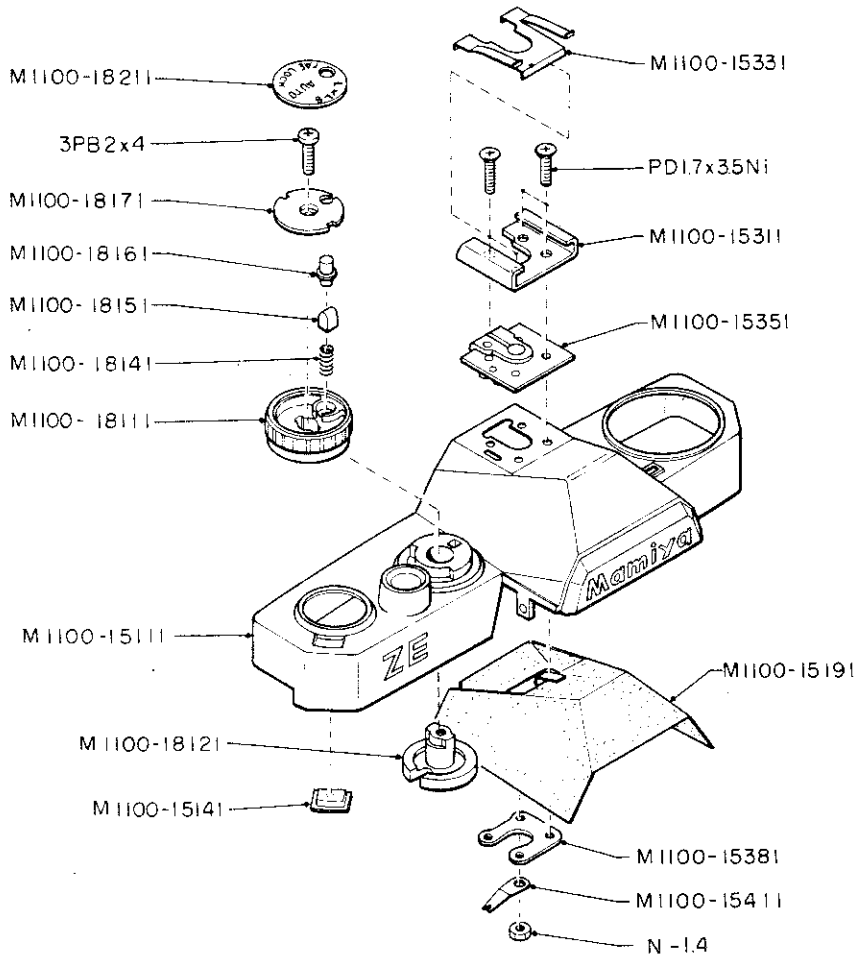
Mamiya

The screw which has a mark of black circle dot on head of the its identification number is new type screw, so called "Tapping screw".

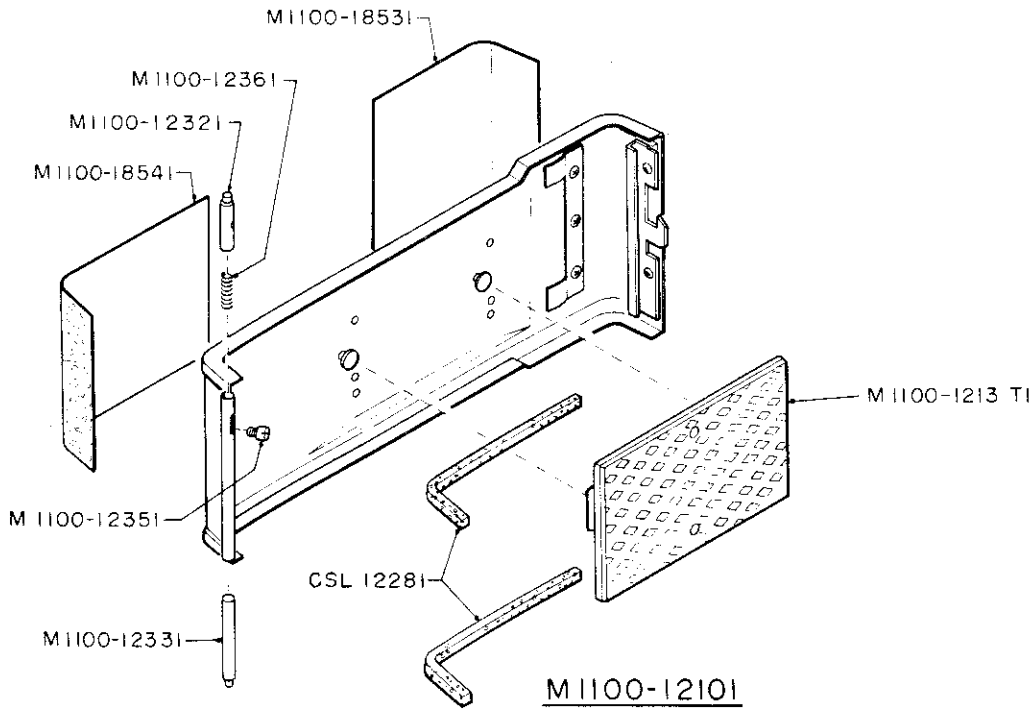
For example:
- TB2 x 4----------Tapping screw
- M1100-13771-------Tapping screw

Note: Special attention should be payed to tightening the screw in order to avoid making oversized or broken hole.

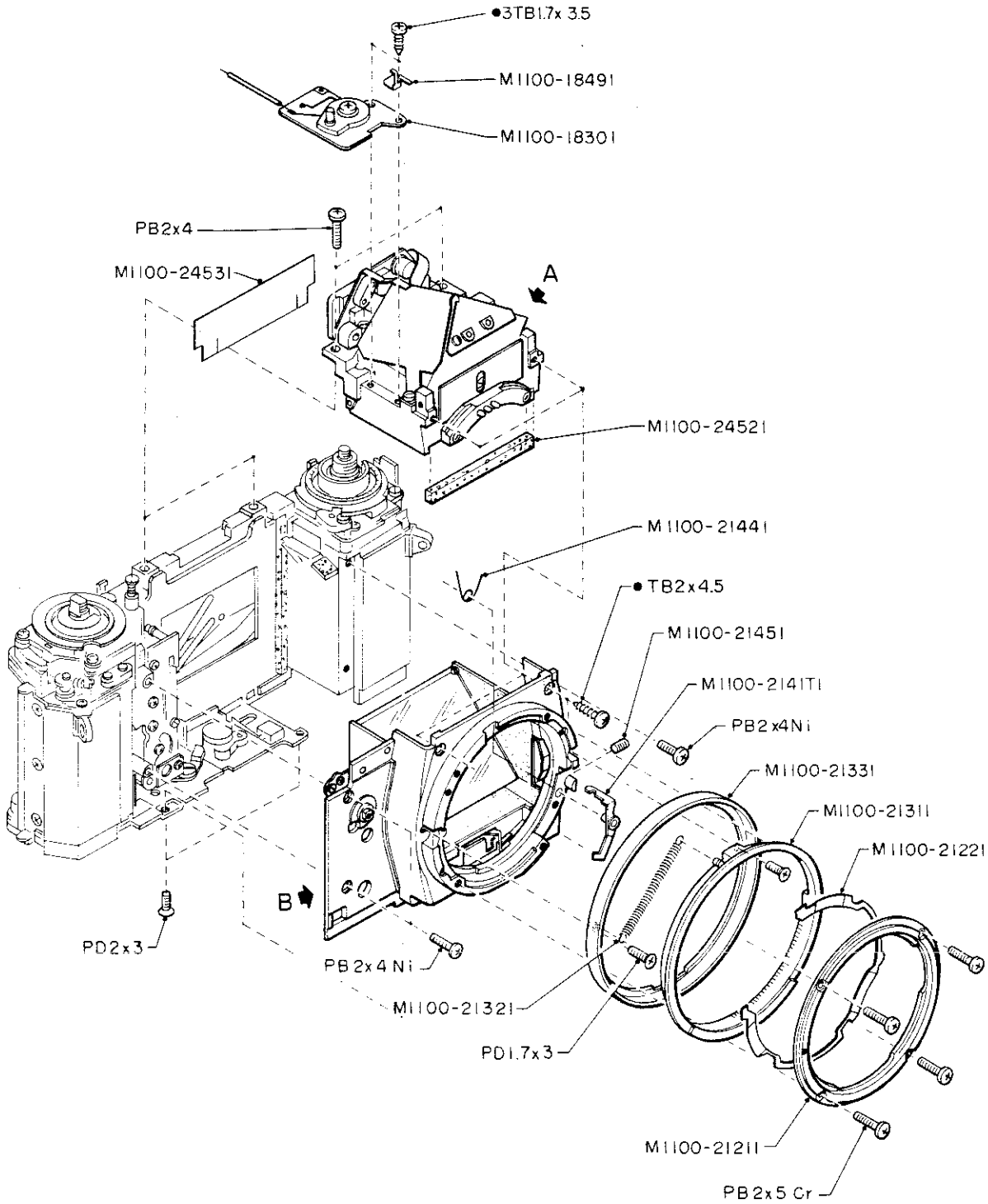

M1100-15751
M1100-15711
M1100-15721
M1100-15761
M1100-15971
CSL 18611
M1100-15941
M1100-15961
M1100-15231
M1100-15951
M1100-15221
(Left hand nut)
M1100-15931
M1100-15211
M1100-15151
M1100-15101
M1100-15171
M1100-15691
Mamiya
M1100-15131
M1100-12101
ZE
M1100-15121
•M1100-15161
M1100-11411
M1100-11421
M1100-22191
M1100-18511
M1100-22141
M1100-21151
•M1100-22161
M1100-17571
M1100-17561
(Left hand screw)
M1100-11191
SLS 16481
M1100-18521
M1100-16111
M1100-16141
M1100-22101
M1100-17591
M1100-17541
M1100-17551
•3TBI.7x4
M1100-11201
M1100-16431
•3TBI.7x4

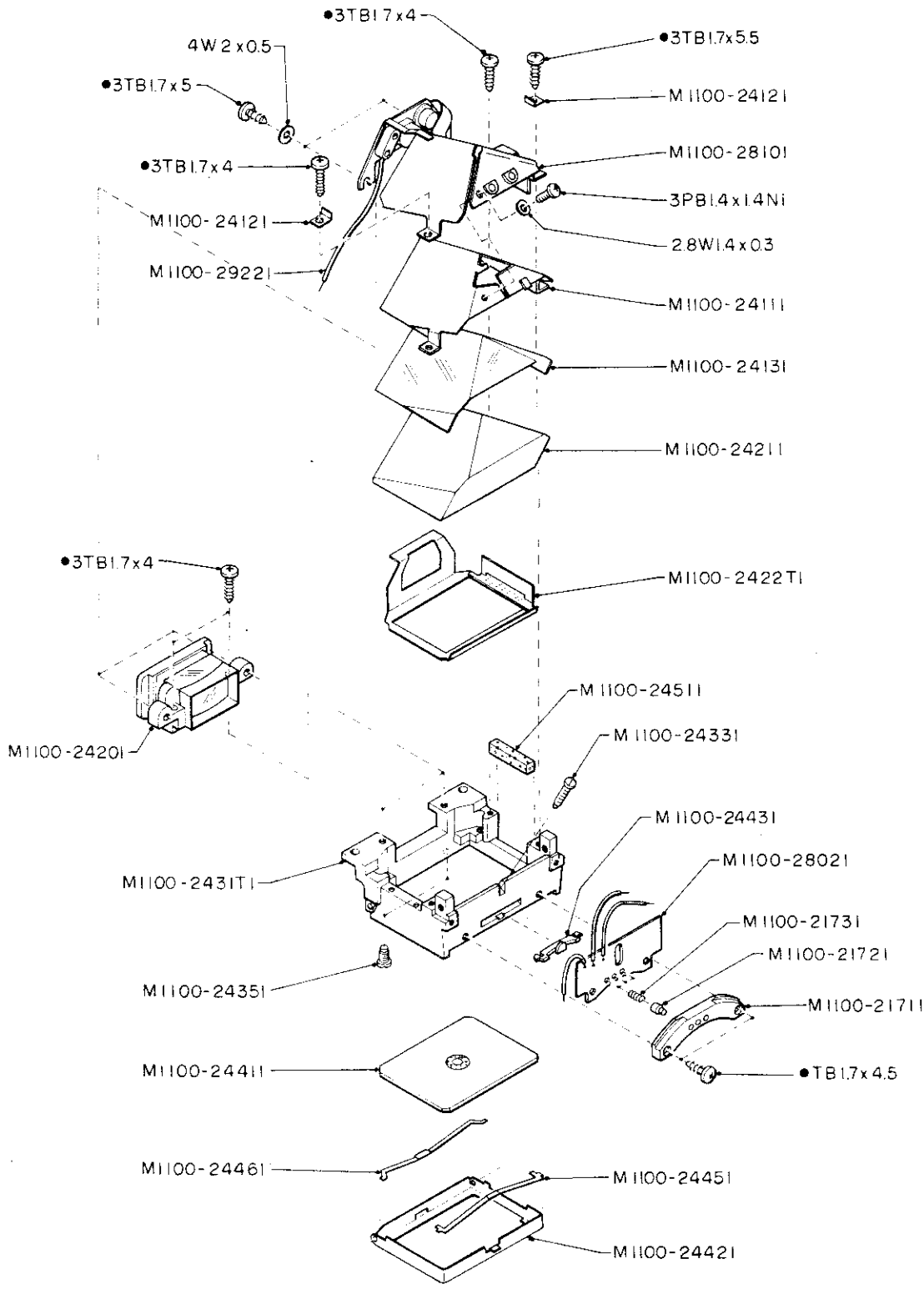


M1100-15101

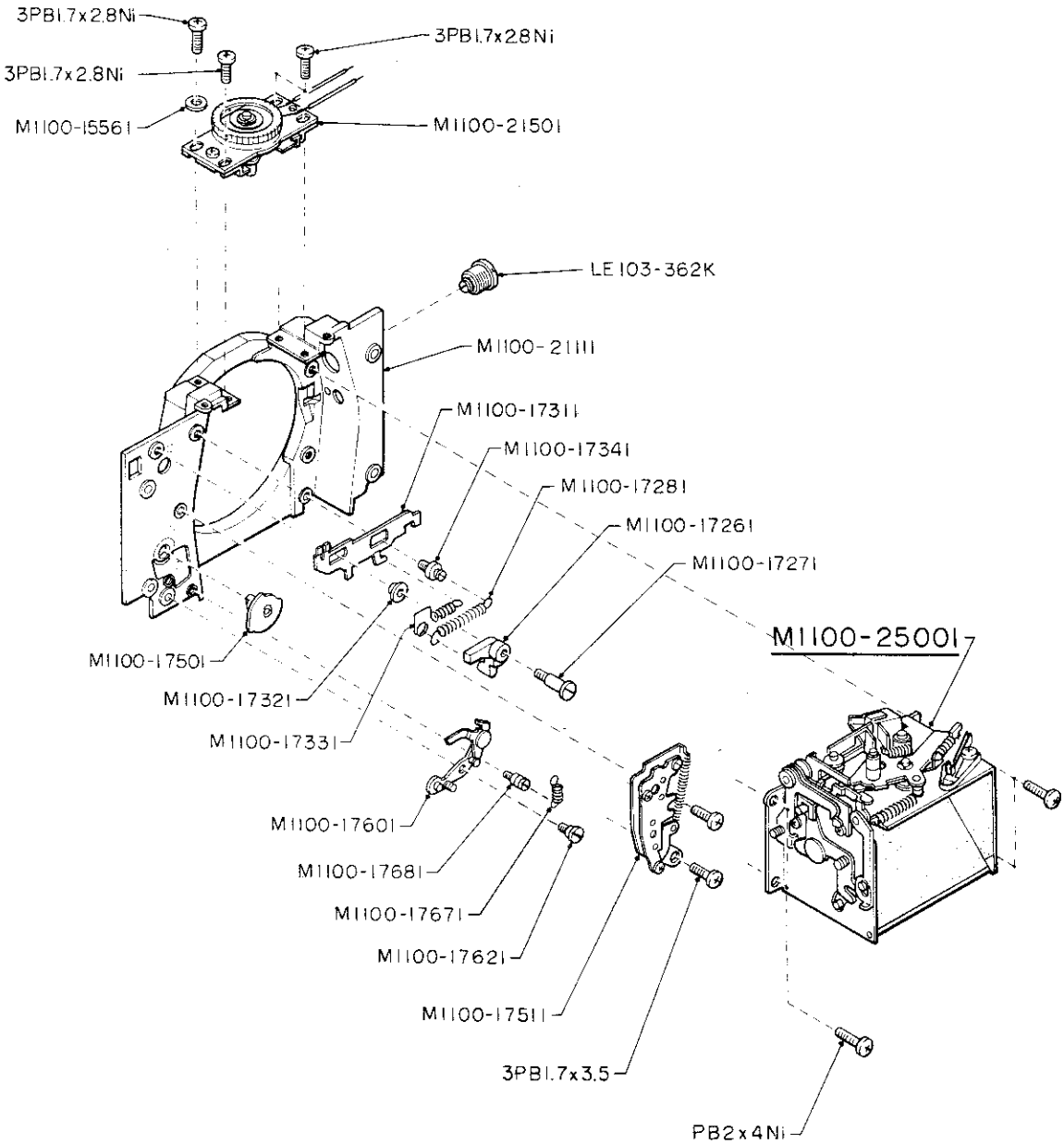


M1100-12101

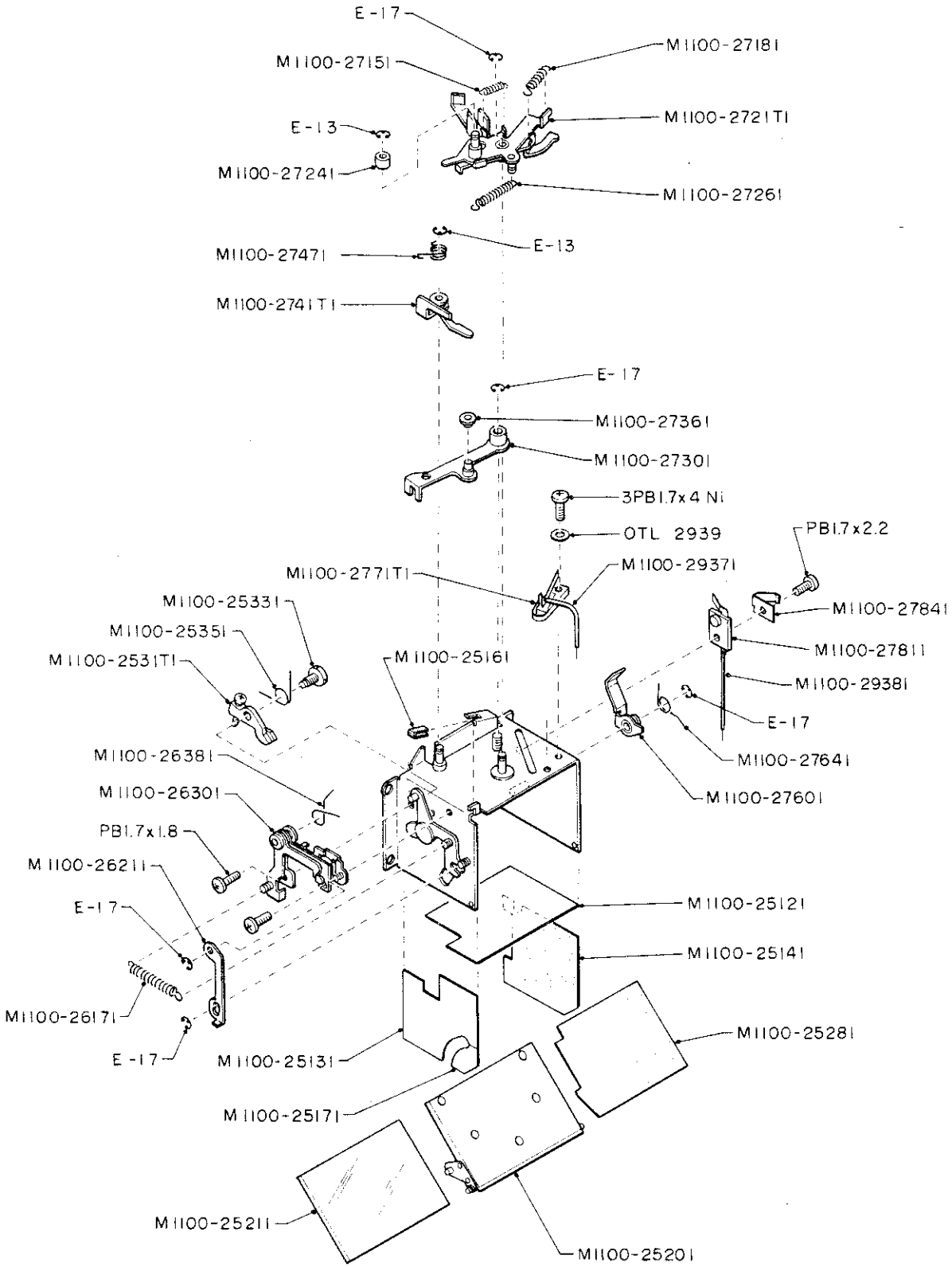

•3TB1.7x 3.5
M1100-18491
M1100-18301
PB2x4
M1100-24531
A
M1100-24521
M1100-21441
•TB2x4.5
M1100-21451
M1100-2141T1
PB2x4Ni
M1100-21331
M1100-21311
M1100-21221
B
PD2x3
PB2x4Ni
M1100-21321
PD1.7x3
M1100-21211
PB2x5 Cr


●3TB1.7x4
4W2x0.5
●3TB1.7x5
●3TB1.7x4
M1100-24121
M1100-29221
●3TB1.7x5.5
M1100-24121
M1100-28101
3PB1.4x14Ni
2.8W1.4x0.3
M1100-24111
M1100-24131
M1100-24211
●3TB1.7x4
M1100-2422T1
M1100-24201
M1100-24511
M1100-24331
M1100-24431
M1100-2431T1
M1100-28021
M1100-21731
M1100-21721
M1100-24351
M1100-21711
M1100-24411
●TB1.7x4.5
M1100-24461
M1100-24451
M1100-24421

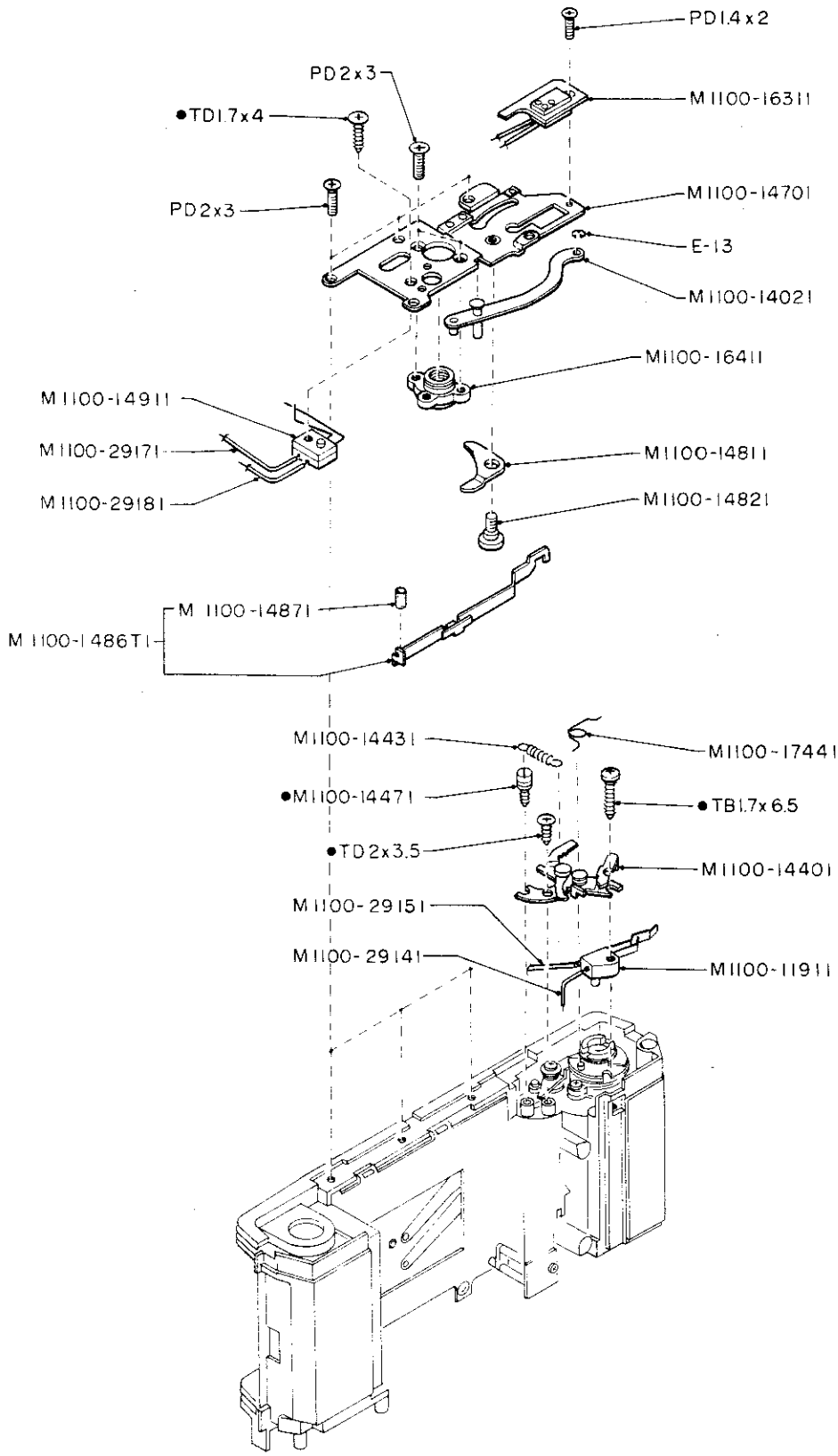
DETAIL "A"

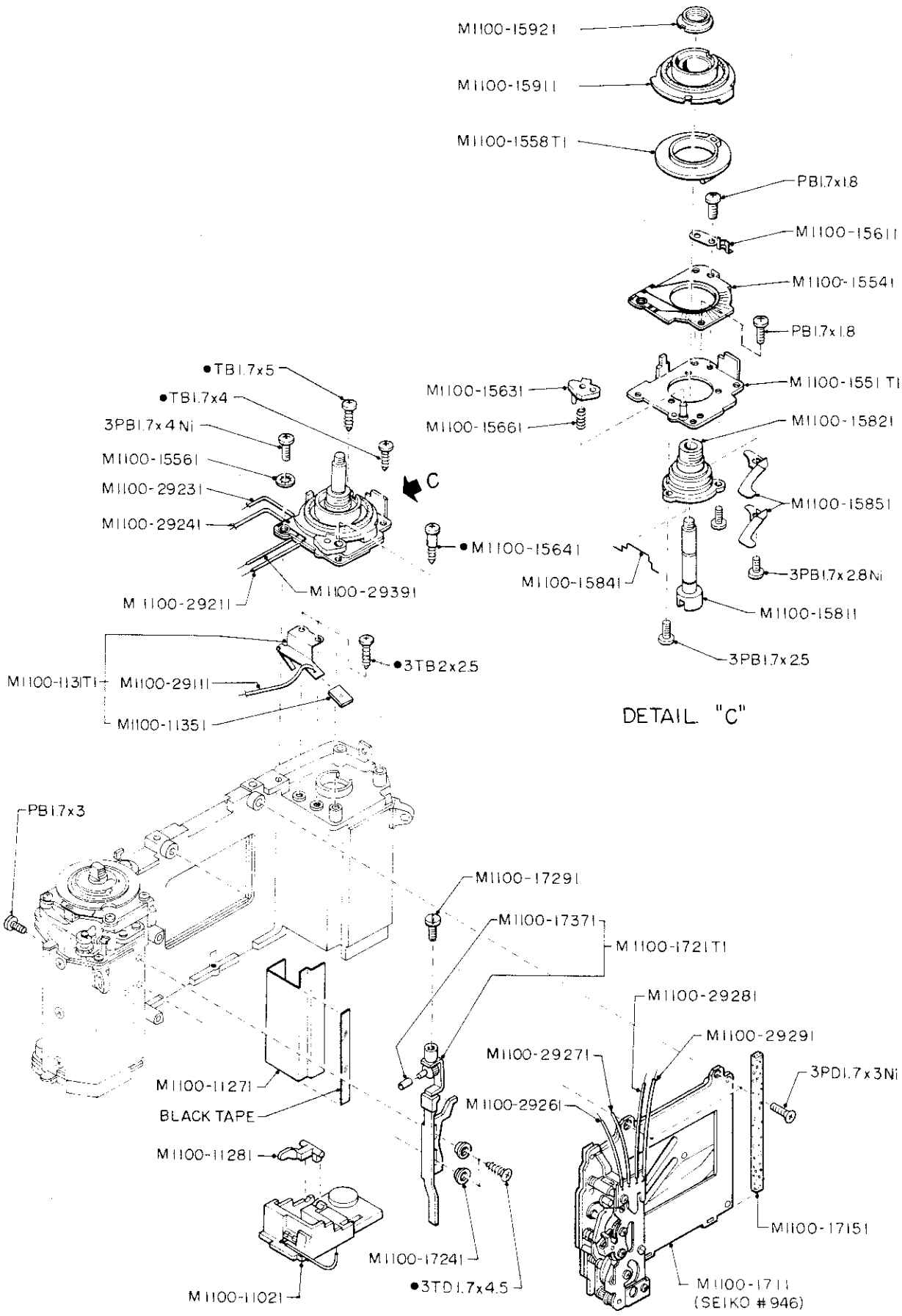

3PB1.7x2.8Ni
3PB1.7x2.8Ni
3PB1.7x2.8Ni
M1100-15561
M1100-21501
LE103-362K
M1100-21111
M1100-17311
M1100-17341
M1100-17281
M1100-17261
M1100-17271
M1100-25001
M1100-17501
M1100-17321
M1100-17331
M1100-17601
M1100-17681
M1100-17671
M1100-17621
M1100-17511
3PB1.7x3.5
PB2x4Ni

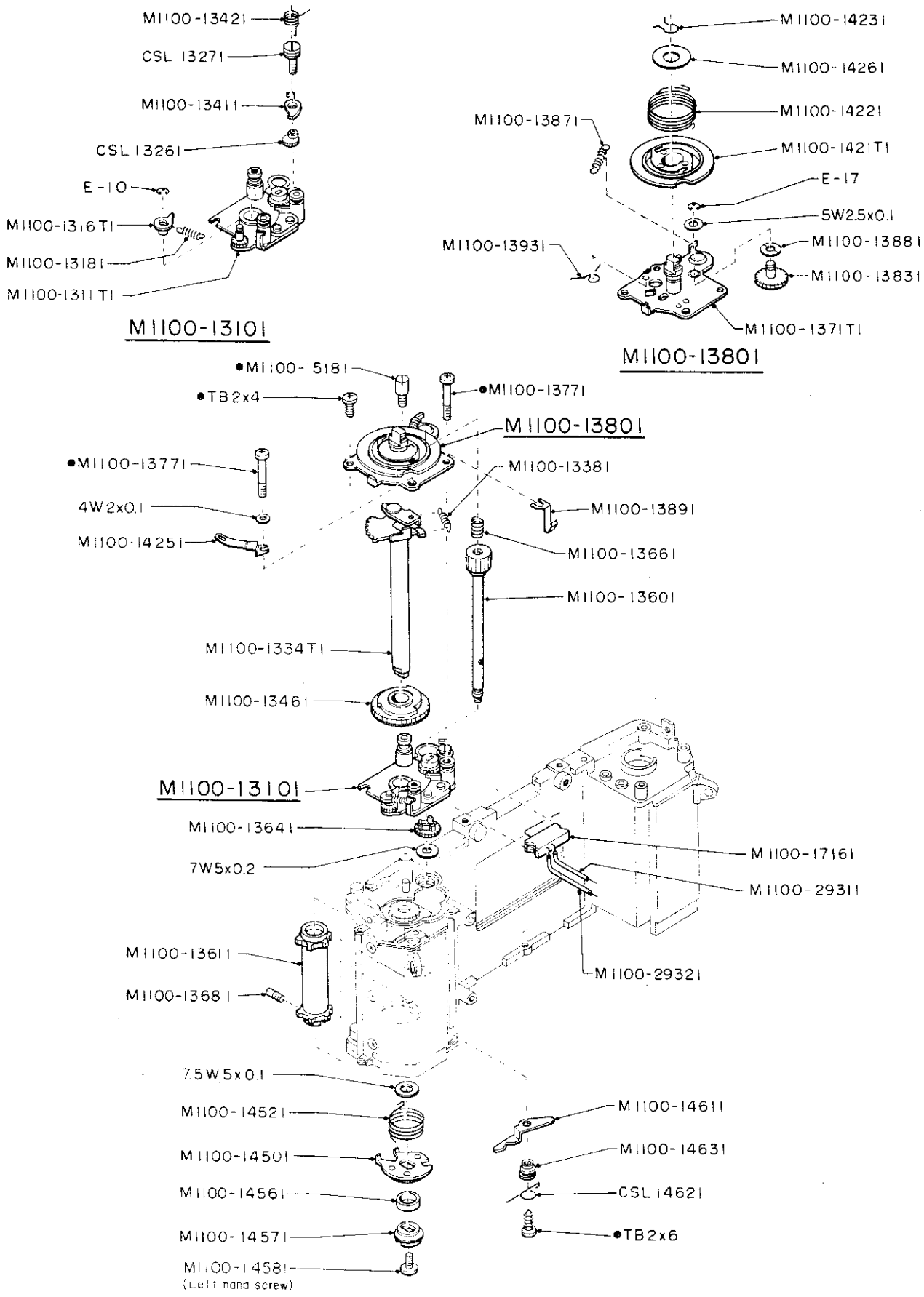
DETAIL "B"

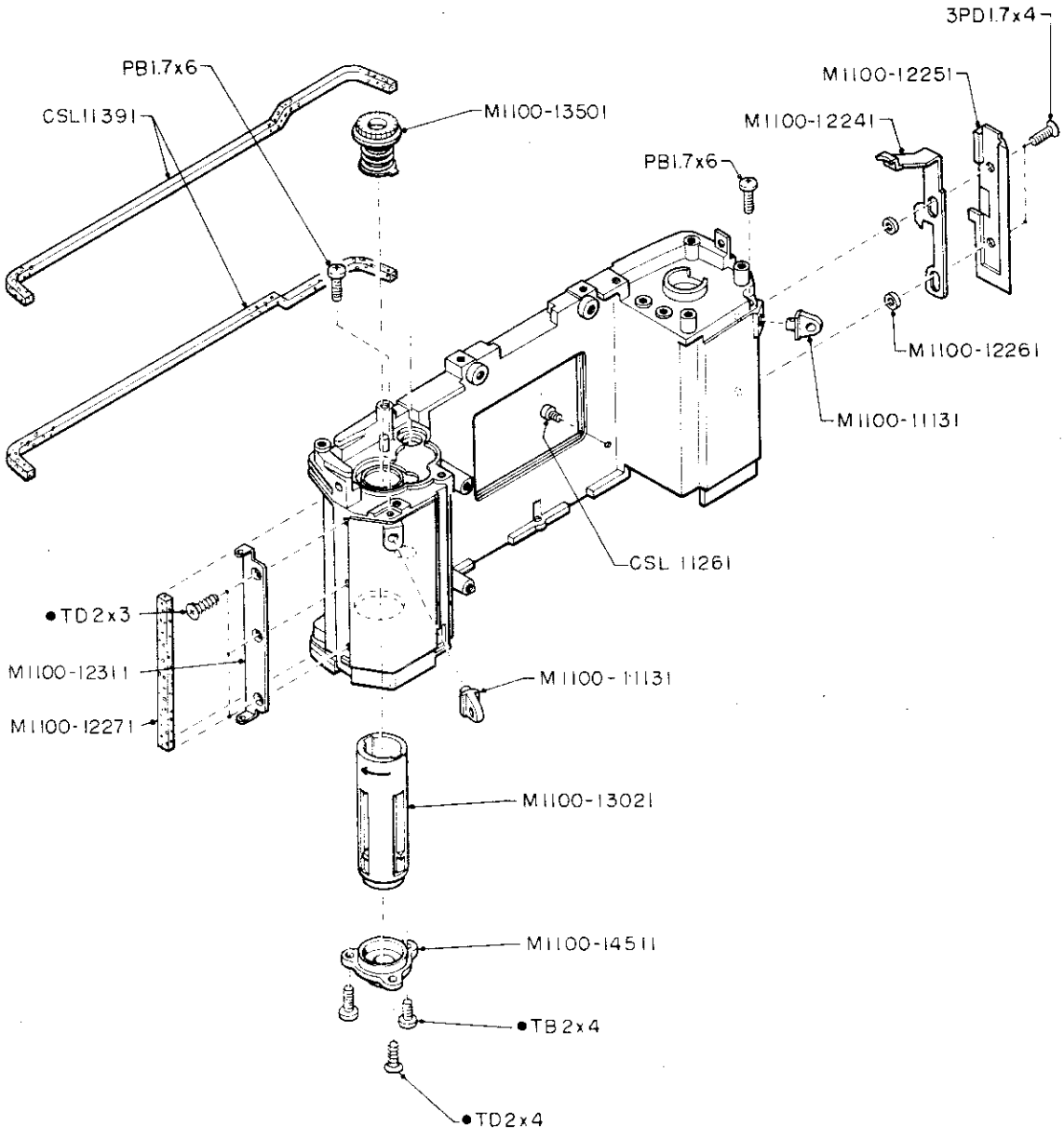

E-17
M1100-27151
M1100-27181
E-13
M1100-27241
M1100-27211
M1100-27261
M1100-27471
E-13
M1100-27411
E-17
M1100-27361
M1100-27301
3PB1.7x4 Ni
OTL 2939
PB1.7x2.2
M1100-27711
M1100-29371
M1100-25331
M1100-27841
M1100-25351
M1100-27811
M1100-25161
M1100-2531T1
M1100-29381
E-17
M1100-26381
M1100-27641
M1100-26301
M1100-27601
PB1.7x1.8
M1100-26211
M1100-25121
E-17
M1100-25141
M1100-26171
M1100-25281
E-17
M1100-25131
M1100-25171
M1100-25211
M1100-25201

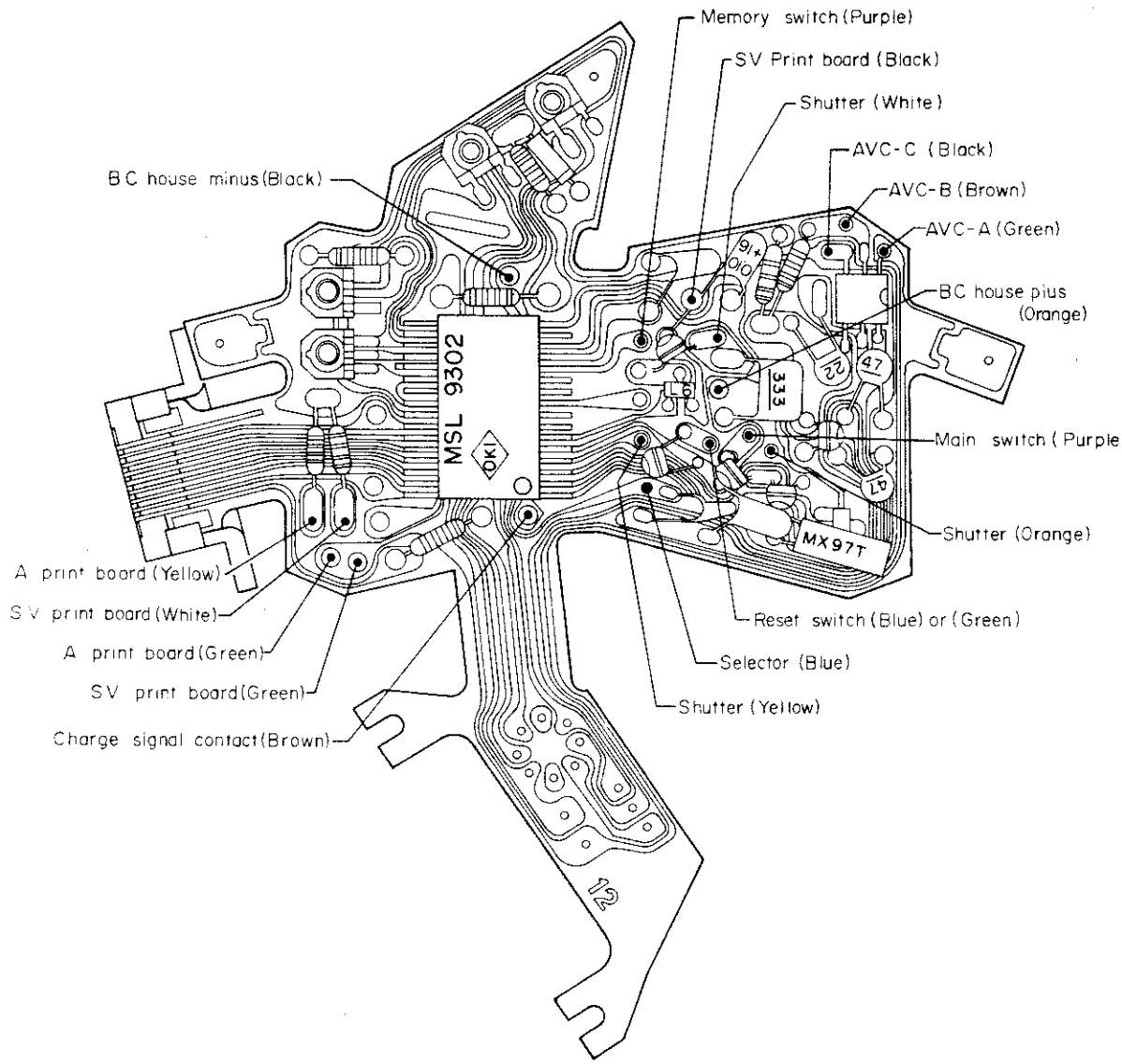
M1100-25001


PD1.4x2
PD2x3
M1100-16311
●TD1.7x4
PD2x3
M1100-14701
E-13
M1100-14021
M1100-16411
M1100-14911
M1100-29171
M1100-29181
M1100-14811
M1100-14821
M1100-14871
M1100-1486T1
M1100-14431
M1100-17441
●M1100-14471
●TB1.7x6.5
●TD2x3.5
M1100-14401
M1100-29151
M1100-29141
M1100-11911

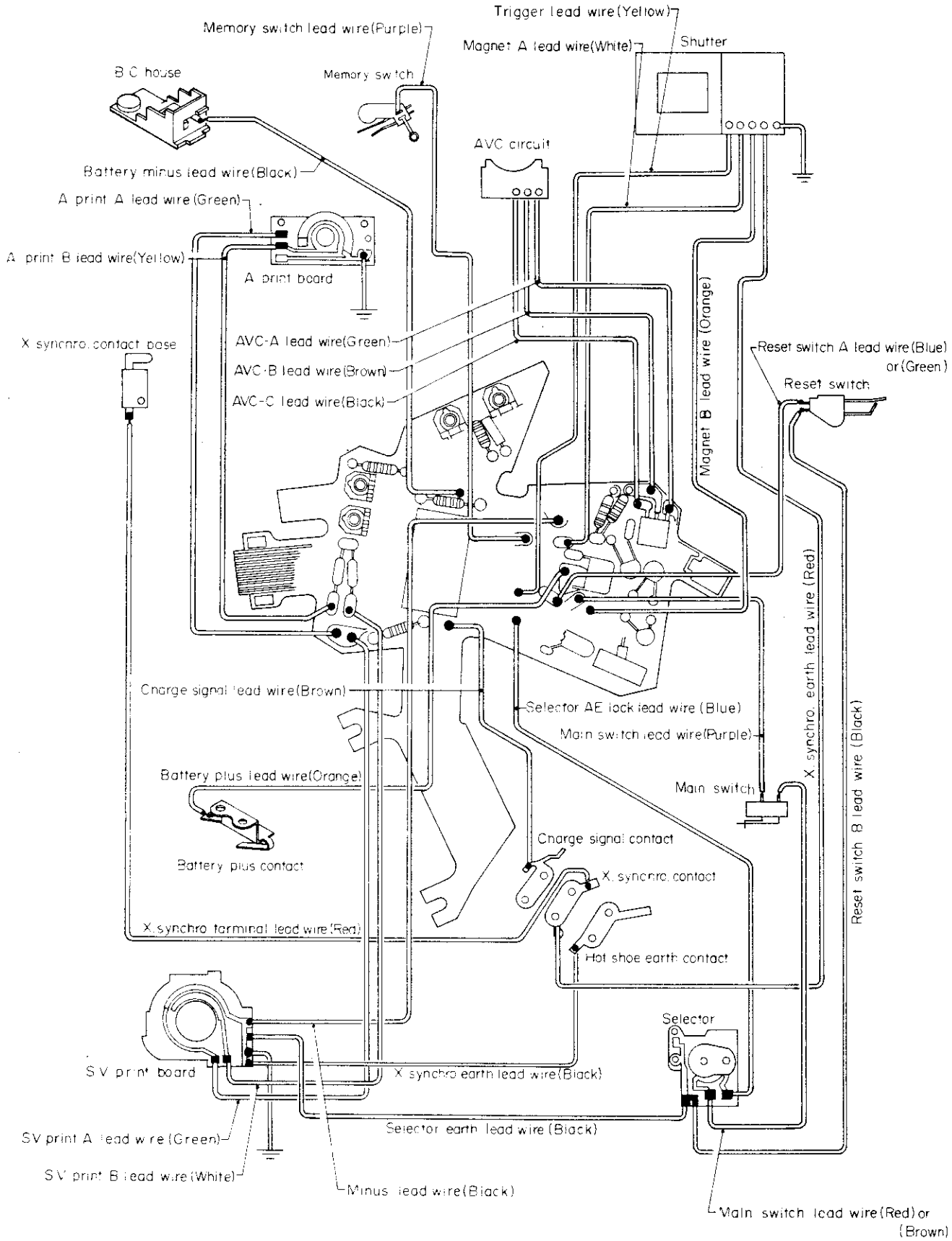

M1100-15921
M1100-15911
M1100-1558T1
PB1.7x1.8
M1100-15611
M1100-15541
PB1.7x1.8
M1100-1551T1
M1100-15631
M1100-15661
M1100-15821
M1100-15851
3PB1.7x2.8Ni
M1100-15811
3PB1.7x25
•TB1.7x5
•TB1.7x4
3PB1.7x4Ni
M1100-15561
M1100-29231
M1100-29241
C
•M1100-15641
M1100-15841
M1100-29211
M1100-29391
M1100-1131T1
M1100-29111
•3TB2x2.5
M1100-11351
DETAIL "C"
PB1.7x3
M1100-17291
M1100-17371
M1100-1721T1
M1100-29281
M1100-29291
M1100-29271
3PD1.7x3Ni
M1100-29261
M1100-11271
BLACK TAPE
M1100-11281
M1100-17151
M1100-17241
•3TD1.7x4.5
M1100-11021
M1100-1711
(SEIKO #946)


M1100-13421
CSL 13271
M1100-13411
CSL 13261
E-10
M1100-1316T1
M1100-13181
M1100-1311T1
M1100-13101
M1100-14231
M1100-14261
M1100-14221
M1100-13871
M1100-1421T1
E-17
5W2.5x0.1
M1100-13931
M1100-13881
M1100-13831
M1100-1371T1
M1100-13801
•M1100-15181
•TB2x4
•M1100-13771
M1100-13801
•M1100-13771
M1100-13381
4W2x0.1
M1100-14251
M1100-13891
M1100-13661
M1100-13601
M1100-1334T1
M1100-13461
M1100-13101
M1100-13641
7W5x0.2
M1100-17161
M1100-29311
M1100-13611
M1100-13681
M1100-29321
7.5W5x0.1
M1100-14521
M1100-14501
M1100-14561
M1100-14571
M1100-1458!
(Left hand screw)
M1100-14611
M1100-14631
CSL 14621
•TB2x6


3PD1.7x4
PB1.7x6
M1100-12251
CSL11391
M1100-13501
M1100-12241
PB1.7x6
M1100-12261
M1100-11131
CSL 11261
●TD2x3
M1100-12311
M1100-12271
M1100-11131
M1100-13021
M1100-14511
●TB2x4
●TD2x4


Memory switch (Purple)
SV Print board (Black)
Shutter (White)
AVC-C (Black)
AVC-B (Brown)
AVC-A (Green)
BC house minus (Black)
BC house plus (Orange)
MSL 9302
DKI
333
22
47
Main switch (Purple)
MX97T
Shutter (Orange)
A print board (Yellow)
SV print board (White)
A print board (Green)
SV print board (Green)
Charge signal contact (Brown)
Reset switch (Blue) or (Green)
Selector (Blue)
Shutter (Yellow)
12

ZE Electro circuit diagram



PARTS LIST

Mamiya ZE

Mamiya

Parts No.	Description	Pcs.	Ref. Page
M1100-11131	Neck strap eyelet	2	10
M1100-11191	Cover	1	1
M1100-11021	BC house	1	8
M1100-11201	Battery cartridge	1	1
M1100-11271	BC inner chamber	1	8
M1100-11281	BC flip lever	1	8
M1100-1131T1	Battery plus contact	1	8
M1100-11351	Heat-shrink tube	1	8
M1100-11411	Strap loop	2	1
M1100-11421	Filling	2	1
M1100-11911	Reset switch	1	7
M1100-12101	Back cover assy.	1	1
M1100-1213T1	Pressure plate	1	2
M1100-12241	Back cover latch	1	10
M1100-12251	Cover	1	10
M1100-12261	Collar	2	2
M1100-12271	Sealing strip	1	10
M1100-12311	Hinge bracket	1	10
M1100-12321	Hinge shaft upper	1	2
M1100-12331	Hinge shaft lower	1	2
M1100-12351	Screw	1	2
M1100-12361	Spring	1	2
M1100-13021	Film take-up spool	1	10
M1100-13101	Winding base plate assy.	1	9
M1100-1311T1	Base plate	1	9
M1100-1316T1	Pawl	1	9
M1100-13181	Spring	1	9
M1100-1334T1	Winding shaft assy.	1	9
M1100-13381	Spring	1	9
M1100-13411	Pawl	1	9
M1100-13421	Spring	1	9
M1100-13461	Winding gear	1	9
M1100-13501	Film take-up spool gear	1	10
M1100-13601	Sprocket shaft	1	9
M1100-13611	Sprocket	1	9

Parts No.	Description	Pcs.	Ref. Page
M1100-13641	Clutch gear	1	9
M1100-13661	Spring	1	9
M1100-13681	Screw	1	9
M1100-1371T1	Film counter base plate	1	9
● M1100-13771	Screw	2	9
M1100-13801	Film counter base plate assy.	1	9
M1100-13831	Advance gear	1	9
M1100-13871	Spring	1	9
M1100-13881	Washer	1	9
M1100-13891	Lead wire clip	1	9
M1100-13931	Spring	1	9
M1100-14021	Connector	1	7
M1100-1421T1	Exposure counter assy.	1	9
M1100-14221	Spring	1	9
M1100-14231	Pin	1	9
M1100-14251	Lndicator	1	9
M1100-14261	Washer	1	9
M1100-14401	Safety winding device	1	7
M1100-14431	Spring	1	7
● M1100-14471	Anchor	1	7
M1100-14501	Crank disc	1	9
M1100-14511	Bearing	1	10
M1100-14521	Spring	1	9
M1100-14561	Collar	1	9
M1100-14571	Winder film advance coupling	1	9
M1100-14581	Screw	1	9
M1100-14611	Clutch lever	1	9
M1100-14631	Shaft	1	9
M1100-14701	Bottom base plate	1	7
M1100-14811	Mirror charging lever	1	7
M1100-14821	Shaft	1	7
M1100-1486T1	Control slide	1	7
M1100-14871	Heat-shrink tube	1	7
M1100-14911	103 Winder switch	1	7
M1100-15101	Top cover assy.	1	1

Parts No.	Description	Pcs.	Ref. Page
M1100-15111	Top cover	1	2
M1100-15121	Spacer	1	1
M1100-15131	Shutter button	1	1
M1100-15141	Window cover	1	2
M1100-15151	Screw	1	1
● M1100-15161	Screw	1	1
M1100-15171	Screw	2	1
● M1100-15181	Screw	1	9
M1100-15191	Insulation cover	1	2
M1100-15211	Winding lever	1	1
M1100-15221	Nut	1	1
M1100-15231	Leatherette	1	1
M1100-15311	Hot-shoe	1	2
M1100-15331	Inner cover	1	2
M1100-15351	Insulation base	1	2
M1100-15381	Retaining	1	2
M1100-15411	X-Contact lever	1	2
M1100-1551T1	SV base plate	1	8
M1100-15541	SV print board	1	8
M1100-15561	Washer	1	5,8
M1100-1558T1	SV middle disc	1	8
M1100-15611	Click spring	1	8
M1100-15631	SV compensation dial lock	1	8
● M1100-15641	Screw	1	8
M1100-15661	Spring	1	8
M1100-15691	Exposure compensation dial lock	1	1
M1100-15711	Rewind knob	1	1
M1100-1572T1	Rewind lever	1	1
M1100-15751	Nut	1	1
M1100-15761	Spring	1	1
M1100-15811	Rewind shaft	1	8
M1100-15821	Hub	1	8
M1100-15841	Spring	1	8
M1100-15851	Spring	2	8

Parts No.	Description	Pcs.	Ref. Page
M1100-15911	Compensation value disc	1	8
M1100-15921	Nut	1	8
M1100-15931	Film speed compensation dial	1	1
M1100-15941	Film speed scale	1	1
M1100-15951	Spring	1	1
M1100-15961	Scale base	1	1
M1100-15971	Nut	1	1
M1100-16111	Bottom cover	1	1
M1100-16141	Rewind button	1	1
M1100-16311	Winder electrical contacts	1	7
M1100-16411	Tripod socket	1	7
M1100-16431	Screw	1	1
M1100-17111	SEIKO shutter #946	1	8
M1100-17151	Sealing strip	1	8
M1100-17161	Main switch	1	9
M1100-1721T1	Shutter release lever	1	8
M1100-17241	Collar	2	8
M1100-17261	Release lever	1	5
M1100-17271	Shaft	1	5
M1100-17281	Spring	1	5
M1100-17291	Screw	1	8
M1100-17311	Slide	1	5
M1100-17321	Hub	1	5
M1100-17331	Spring	1	5
M1100-17341	Anchor	1	5
M1100-17371	Heat-shrink tube	1	8
M1100-17441	Spring	1	7
M1100-17501	Self-timer cam	1	5
M1100-17511	Self-timer	1	5
M1100-17541	Self-timer lever	1	1
M1100-17551	Washer	1	1
M1100-17561	Screw	1	1
M1100-17571	Ring	1	1
M1100-17591	Leatherette	1	1
M1100-17601	Actuating lever	1	5

Parts No.	Description	Pcs.	Ref. Page
M1100-17621	Screw	1	5
M1100-17671	Spring	1	5
M1100-17681	Anchor	1	5
M1100-18111	Shutter mode selector	1	2
M1100-18121	Selector shaft	1	2
M1100-18141	Spring	1	2
M1100-18151	Click	1	2
M1100-18161	Selector button	1	2
M1100-18171	Selector cap	1	2
M1100-18211	Selector plate	1	2
M1100-18301	Selector printed board	1	3
M1100-18491	Lead wire clip	1	3
M1100-18511	Leatherette	1	1
M1100-18521	Leatherette	1	1
M1100-18531	Leatherette	1	2
M1100-18541	Leatherette	1	2
M1100-21111	Front housing	1	5
M1100-21151	Patch cover	1	1
M1100-21211	Bayonet ring	1	3
M1100-21221	Spring	1	3
M1100-21311	Aperture value ring	1	3
M1100-21321	Spring	1	3
M1100-21331	Cover	1	3
M1100-2141T1	Lens lock lever	1	3
M1100-21441	Spring	1	3
M1100-21451	Screw	1	3
M1100-21501	A print board	1	5
M1100-21711	Pin board	1	4
M1100-21721	Pin	3	4
M1100-21731	Spring	3	4
M1100-22101	Apron	1	1
M1100-22141	Splint	1	1
● M1100-22161	Screw	2	1
M1100-22191	Safety cover	1	1
M1100-24111	Prism roof	1	4

Parts No.	Description	Pcs.	Ref. Page
M1100-24121	Washer	2	4
M1100-24131	Mayler cover	1	4
M1100-24201	Eyepiece frame assy.	1	4
M1100-24211	Penta prism	1	4
M1100-2422T1	Shutter speed scale frame	1	4
M1100-2431T1	Focusing screen frame	1	4
M1100-24331	Adjusting screw	1	4
M1100-24351	Adjusting screw	2	4
M1100-24411	Fresnel lens	1	4
M1100-24421	Fresnel lens frame	1	4
M1100-24431	Release pawl	1	4
M1100-24451	Spring	1	4
M1100-24461	Spring	1	4
M1100-24511	Sealing strip	1	4
M1100-24521	Sealing strip	1	3
M1100-24531	Curtain	1	3
M1100-25001	Mirror housing assy.	1	5
M1100-25121	Reflection absorber leatherette	1	6
M1100-25131	Reflection absorber leatherette	1	6
M1100-25141	Reflection absorber leatherette	1	6
M1100-25161	Damper	1	6
M1100-25171	Reflection absorber leatherette	1	6
M1100-25201	Mirror holder	1	6
M1100-25211	Mirror	1	6
M1100-25281	Reflection absorber leatherette	1	6
M1100-2531T1	Mirror angle regulator	1	6
M1100-25331	Screw	1	6
M1100-25351	Spring	1	6
M1100-26171	Spring	1	6
M1100-26211	Mirror return rod	1	6

Parts No.	Description	Pcs.	Ref. Page
M1100-26301	Latch and release lever unit	1	6
M1100-26381	Spring	1	6
M1100-27151	Spring	1	6
M1100-27181	Spring	1	6
M1100-2721T1	Mirror charge lever unit	1	6
M1100-27241	Collar	1	6
M1100-27261	Spring	1	6
M1100-27301	Mirror raising lever	1	6
M1100-27361	Roller	1	6
M1100-2741T1	Latch	1	6
M1100-27471	Spring	1	6
M1100-27601	NC lever	1	6
M1100-27641	Spring	1	6
M1100-2771T1	Memory switch	1	6
M1100-27811	X synchro contact base	1	6
M1100-27841	Lead wire clip	1	6
M1100-28021	AVC circuit board	1	4
M1100-28101	Flexible electro circuit board	1	4
M1100-29111	Lead wire (Orange)	1	8
M1100-29141	Lead wire (Blue)	1	7
M1100-29151	Lead wire (Black)	1	7
M1100-29171	Lead wire (Red)	1	7
M1100-29181	Lead wire (Orange)	1	7
M1100-29211	Lead wire (Black)	1	8
M1100-29221	Lead wire (Black)	1	4
M1100-29231	Lead wire (Green)	1	8
M1100-29241	Lead wire (White)	1	8
M1100-29261	Lead wire (Red)	1	8
M1100-29271	Lead wire (Orange)	1	8
M1100-29281	Lead wire (White)	1	8
M1100-29291	Lead wire (Yellow)	1	8
M1100-29311	Lead wire (Purple)	1	9
M1100-29321	Lead wire (Red)	1	9
M1100-29371	Lead wire (Purple)	1	6
M1100-29381	Lead wire (Red)	1	6

Parts No.	Description	Pcs.	Ref. Page
M1100-29391	Lead wire (Black)	1	8
CSL11261	Guide screw	1	10
CSL11391	Sealing strip	2	10
CSL12281	Sealing strip	2	2
CSL13261	Eccentric collar	1	9
CSL13271	Stud screw	1	9
CSL14621	Spring	1	9
CSL18611	Cover	1	1
OTL2939	Washer	1	6
SLS16481	Plate	1	1
LE103-362K	X synchro. terminal	1	5
PB1.7x1.8	Screw for M1100-15541	2	8
	for M1100-26301	2	6
PB1.7x2.2	Screw for M1100-27841	1	6
PB1.7x3	Screw for M1100-17111	1	8
PB1.7x6	Screw for M1100-11131	2	10
PB2x4Ni	Screw for M1100-21111	4	3
	for M1100-25001	4	5
PB2x4	Screw for M1100-2431T1	2	3
PB2x5Ni	Screw for M1100-21211	4	3
PD1.4x2	Screw for M1100-16311	1	7
PD1.7x3	Screw for M1100-2133	2	3
PD1.7x3.5	Screw for M1100-15311	4	2
PD2x3	Screw for M1100-14701	3	7
	for M1100-21111	2	3
	for M1100-16411	2	7
3PB1.4x1.4Ni	Screw for M1100-28101	1	4
3PB1.7x2.5	Screw for M1100-15821	2	8
3PB1.7x2.8	Screw for M1100-15851	1	8
	for M1100-21501	4	5
3PB1.7x3.5	Screw for M1100-17511	2	5
3PB1.7x4Ni	Screw for M1100-1551T1	1	8
3PB1.7x4Ni	Screw for M1100-2771T1	1	6
3PB2x4	Screw for M1100-18171	1	2
3PD1.7x3Ni	Screw for M1100-17111	2	8

Parts No.	Description	Pcs.	Ref. Page
3PD1.7x4	Screw for M1100-12251	2	10
● TB1.7x4	Screw for M1100-1551T1	1	8
● TB1.7x4.5	Screw for M1100-21711	2	4
● TB1.7x5	Screw for M1100-1551T1	1	8
● TB1.7x6.5	Screw for M1100-11911	1	7
● TB2x4	Screw for M1100-13801	1	9
	for M1100-14511	2	10
● TB2x4.5	Screw for M1100-2431T1	2	3
● TB2x6	Screw for M1100-14611	1	9
● TD1.7x4	Screw for M1100-14911	1	7
● TD2x3	Screw for M1100-12311	3	10
● TD2x3.5	Screw for M1100-14401	1	7
● TD2x4	Screw for M1100-14511	1	10
● 3TB1.7x3.5	Screw for M1100-18301	2	3
● 3TB1.7x4	Screw for M1100-16111	2	1
	for M1100-24121	1	4
	for M1100-24201	2	4
	for M1100-28101	1	4
● 3TB1.7x5	Screw for M1100-28101	2	4
● 3TB1.7x5.5	Screw for M1100-24121	1	4
● 3TB2x2.5	Screw for M1100-1131T1	2	8
● 3TD1.7x4.5	Screw for M1100-1721T1	2	8
2.8W1.4x0.3	Washer	1	4
4W2x0.1	Washer	1	9
4W2x0.5	Washer	2	4
5W2.5x0.1	Washer	1	9
7.5W5x0.1	Washer	1	9
7.5W5x0.2	Washer	1	9
N-1.4	Nut	1	2
E-10	E-ring	1	9
E-13	E-ring	3	6,7
E-17	E-ring	6	6,9